



## HOW TO OBTAIN A WATER SUPPLY IN THE ABSENCE OF SPRINGS, RIVERS AND RAIN.

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IN the consideration of a water supply in the absence of all rivers, springs and rain, it must be realised that every drop of water that falls to the earth comes from the air. As the air is the source of supply it is necessary to consider shortly the composition of the air we breathe. All that need be said about this is that it is composed of certain gases and aqueous vapour. All gases, except aqueous vapour, are present in definite proportions to each other, but the aqueous vapour is subject to very large variations. This gas, or aqueous vapour, is always being given off by evaporation from any surface of water or from ice until the atmosphere becomes saturated with it. The point of saturation, or the dew-point, represents that state of the atmosphere when it cannot contain any additional moisture or aqueous vapour at a given temperature. The dew-point or state of saturation varies with the temperature. The higher the temperature of the air the more aqueous vapour it is capable of containing. The state of saturation is made known when the dry and wet thermometers record the same temperature. It is obvious that if the temperature of saturated atmosphere is lowered below the dew-point, then the moisture that it cannot contain at such lower temperature must be deposited. This deposition of aqueous vapour consequent upon the lowering of the temperature below the dew-point sometimes forms dew, or it may fall as rain or remain suspended in the air as a mist. If the temperature of the atmosphere is again raised without any chance of its coming in contact with any form of moisture, then the atmosphere is comparatively dry and evaporation from any moist surface is rapid. In fact, as the temperature of the atmosphere rises it absorbs moisture whenever it comes in contact with it, and as it falls below the dew-point it deposits its excess of moisture. The process of evaporation takes up pure aqueous vapour from even the most fetid pools, and it is again distributed on the surface of the earth in the form of pure water when the temperature falls below the dew-point. If it were not for this action and reaction, life, as we know it, would be impossible on the earth.

Passing from these elementary remarks, we must now consider by what process the temperature of the atmosphere can be chilled below the dew-point, so that its superabundance of aqueous vapour shall be deposited at the lower temperature upon a desired surface and in sufficient quantity to afford a water supply. Before, however, directly dealing with this point, it must be realised that the portion of the earth receiving the sun's rays during the day is absorbing a certain amount of heat. Generally

speaking, one-half of the heat of the sun received by the illuminated atmosphere is absorbed by the air, leaving the other half to reach the surface of the ground, provided that there are no intercepting clouds. This process of absorption of the heat of the sun during the day is reversed during the night. For our present purpose it may be assumed that the heat received either by the atmosphere, or by any portion of the surface of the earth, during the day, is radiated during the night, into space. Thus the atmosphere which is warmed during the day is capable of containing a greater percentage of aqueous vapour than it can retain, if it is chilled below the dew-point, during the night. When the temperature of the surface of the earth falls during the night below the dew-point the excess of aqueous vapour, in the form of dew, is deposited. If, however, the sky during the night is overcast with clouds the heat acquired by the day is given off into the layer of air below the clouds, and the tendency is for the temperature of the earth and the atmosphere to be maintained. Under these conditions the atmosphere will continue to contain the aqueous vapour and little or no dew will be deposited. It is on the clear starlight nights that the most copious depositions of dew take place.

The atmosphere may also be warmed or chilled by purely mechanical processes. Thus, if a lump of ice is placed in a glass of water the outside of the glass becomes chilled, and the moisture-laden air, coming in contact with the chilled surface of the glass, in its turn decreases in temperature. As soon as it falls below the dew-point the outside surface of the glass, especially if it has a rough and not a polished surface, becomes coated with beads of water. If now the glass of water containing the ice be placed on a plate the dew will soon be seen running down the surface of the glass and forming a dew pond in the plate. From this example it will be seen that, provided a chilled surface can be produced which will lower the surrounding temperature of the atmosphere below the dew-point, the aqueous vapour will be condensed on the chilled surface. Radiation lowers the temperature, and so does evaporation, and when these two forces are both in action a very considerable fall is reached in the temperature of the radiating and evaporating body. As a concrete example of this, the well-known method adopted in India of procuring ice is worth recording. For an account of this I quote from Scott's *Meteorology*, in the "International Scientific Series":—

A very practical use of nocturnal radiation has been made from time immemorial in India, in the preparation of ice, and on such a scale that about ten tons of ice can be procured in a single night, from twenty beds of the dimensions about to be given, when the temperature of the air is  $15^{\circ}$  or  $20^{\circ}$  Fahr. above the freezing point. The locality referred to is in the immediate neighbourhood of Calcutta. A rectangular piece of ground is marked out, lying east and west, and measuring 120 by 20 feet. This is excavated to a depth of 2 feet and filled with rice straw, rather loosely laid to within 6 inches of the surface of the ground.

The ice is formed in shallow dishes or porous earthenware, and the amount of water placed in each is regulated by the amount of ice expected. No ice is formed if the wind is sufficiently strong to be called a breeze, for the air is not left long enough at rest, above the bed, for the temperature to fall sufficiently by the action of radiation.

To obtain this result I should imagine that it is essential that it should be a cloudless night, and the air comparatively still. Mr. Scott points out that this freezing action ceases with southern or easterly airs, which contain more moisture than the north-north-west airs. It is when the wind is in the north-north-west that the freezing action is most active, and it is largely owing to the chilling effect of *evaporation* in the dryer airs that the freezing temperature is reached. From this example it will be seen that the straw lining is a non-conductor of heat, and thus prevents the pans of water from absorbing the heat of the surrounding earth. As the heat that the water and the pans contained in the first instance becomes lessened by radiation and evaporation during the night, the temperature of the water falls below the freezing point. It is well to bear in mind this striking illustration of the low temperature which can be attained by a body of water protected by a non-conductor of heat from contact with the surrounding earth. In miniature we have here almost the same conditions which operate in a properly constructed dew-pond.

Another example, which will be more familiar to everybody, may be seen on the railways where the sleepers are entirely covered by gravel. On a frosty morning it may often be observed that the hoar-frost covers the gravel lying immediately above the wooden sleepers, whereas the gravel lying

between the sleepers shows no sign of hoar-frost. In this case the wooden sleepers act as a non-conductor, and the gravel lying above them, having radiated into space a certain amount of the acquired heat of the day, becomes chilled and the dew which is deposited upon this protected gravel becomes frozen and appears as hoar-frost. A decayed sleeper may at once be detected, as it no longer acts as a non-conductor of heat, and so the hoar-frost is not deposited on its surface. Illustrations might be quoted without number, but my object in referring to these instances is to emphasise the fact that, by the application of simple automatic conditions, definite results may be obtained which may some day prove to be of great importance to humanity.

In certain countries where there are neither rivers nor springs, and where the rain seldom or never falls, the conditions appear to render such localities unsuitable for man and beast. Yet, by the application of scientific principles, a constant water supply will be obtained if it is possible to lower the temperature of the air below the dew-point. This, I think, may be done on the evidence of the following facts :

Before beginning to construct a dew-pond it would be quite possible to predict with considerable measure of certainty whether it would or would not act as a condenser in any particular locality. All substances during the night have the tendency to decrease in temperature below the temperature of the surrounding air, but owing to their mass or bulk this process of cooling may be too gradual to allow the substance to attain its ultimate degree of coldness before the sun rises in the morning. Provided the substance has a sufficiently large superficial radiating area, and it is thermally cut off from its surroundings, except the air, it will attain what is known as its "thermometric distance." Thus, the temperature of grass always assumes a temperature of  $3.6^{\circ}$  below the temperature of the surrounding air, whatever that may happen to be. Swansdown, for instance, always drops  $12^{\circ}$  to  $13^{\circ}$  below the temperature of the air, and I found that a thin piece of iron 15 inches square, when suspended in the air, dropped during the night  $9^{\circ}$  below the temperature of the air at the same level. On this point Tyndall says : "Thus, while the general temperature varies within wide limits, the difference of temperature between the radiating body and the surrounding air remains sensibly constant." This thermometric distance, that all substances try to attain, may give some astonishing results.

Let it be imagined, for example, that it is a still night and the grass has dropped in temperature to its thermometric distance  $3.6^{\circ}$  below the air. The air in its turn drops in temperature by contact with the cold grass. The consequence is that the grass attempts to re-establish its proper thermometric distance, and to do this it has again to fall in temperature, and this in its turn again further chills the air. The final result is that the grass may drop in temperature perhaps  $18^{\circ}$  below the temperature of the air a few feet *above the grass*. From the dew-pond point of view this is an important factor in predicting whether the dew-point will or will not be reached in a proposed dew-pond. It is by a comparison between the number of degrees that the temperature of the air is likely to be lowered by the cooling effect of the condensing surface with the number of degrees that the atmosphere must fall before the dew-point is touched that it becomes possible to predict whether aqueous vapour will or will not be condensed out of the atmosphere.

To illustrate what I mean I find that at Moddersfontein, in the Pretoria district, no rain falls during the months of June, July and August, and yet at 6 a.m., the hour when the readings are taken of the wet and dry bulb thermometers, that the dew-point is never more than  $10^{\circ}$  below the temperature of the air. If my little metal plate 15 inches square fell  $9^{\circ}$  below the temperature of the air at the same level, it may safely be assumed that a large area of metal would fall considerably more, in the same way that grass which has a thermometric distance of  $3.6^{\circ}$  falls on a still night  $18^{\circ}$  below the temperature of air a few feet above it. At Moddersfontein a drop of  $10^{\circ}$  only is required to get the first traces of dew, thin iron plates over a fairly large area should easily drop very considerably more than this, so that distilled water might be obtained at Moddersfontein during the three months when no rain falls.

## ANCIENT DEW-PONDS.

In numerous dew-ponds in this country the dew-point is reached without difficulty. But not till my brother, Dr. Hubbard, first suggested the physical action that was in progress, was a scientific explanation advanced as to why these ponds remained charged with water through the longest summer and in the absence of all springs or surface drainage. Furthermore, we were, I think the first to show that these ponds furnished the principal water supply to those pre-historic races who lived on the hill-tops on the South Downs thousands of years ago. On the higher part of the Downs, and sometimes on the very summit of the Downs, such ponds may be seen.

From time immemorial a certain definite form of construction seems to have been adopted. For a description of this I quote from *Neolithic Dew-ponds and Cattleways*, the joint work of my brother and myself:

Operations are commenced by hollowing out the earth for a space, far in excess of the apparent requirements of the proposed pond. The whole of the hollow is then thickly covered with a coating of dry straw. The straw in its turn is covered by a layer of well-chosen, finely-puddled clay, and the upper surface of the clay is then closely strewn with stones. Care must be taken that the margin of the straw is effectively protected by clay. The pond will gradually become filled with water, the more rapidly the larger it is, even though no rain may fall. If such a structure is situated on the summit of a down, during the warmth of a summer day the earth will have stored a considerable amount of heat, while the pond, protected from the heat, by the non-conductivity of the straw, is at the same time chilled by the process of evaporation from the puddled clay. The consequence is that during the night the moisture of the comparatively warm air is condensed on the surface of the cold clay. Owing to the chilling effect of evaporation from this thermally isolated surface, the condensation during the night is in excess of the evaporation during the day, and the pond becomes, night by night, gradually filled. The dew-pond will cease to attract the dew if the layer of straw should get wet, as it then becomes of the same temperature as the surrounding earth, and ceases to act as a non-conductor of heat.

The late C. J. Cornish, in *The Naturalist on the Thames*, gives some perfectly surprising results in respect to the accumulation of water in a dew-pond. The measurements were made by a shepherd employed by Mr. Cornish.

Whenever he (the shepherd) thought that a heavy dew or fog was to be expected he notched a stick and drove it into the pond over night so that the notch was level with the surface. Next morning he pulled it up, marked how high the water had risen above the notch; and notched it again, for measurement. On January 18th, 1901, after a night of fog, the water rose  $1\frac{1}{2}$  inches; on the next day after another fog, 2 inches; and on January 24th 1 inch. Five nights of winter fog gave a total rise of 8 inches, a vast weight of water even in a pond of moderate area. Five days of heavy spring dew in April and May with no fog gave a total rise in the same pond of  $3\frac{1}{2}$  inches, the dews, though one was very heavy, giving less water than the fogs, one of which even in May caused the water to rise  $1\frac{1}{2}$  inch.

The heaviest rainfall in these islands would never probably give anything approaching this result within the same time, and the full effect of this may perhaps be better appreciated when it is realised that an inch fall of rain represents slightly over 100 tons of water to the acre.

In some localities the ponds are known to the shepherds as "misty ponds," because it is asserted that the mists hang over the ponds. The chilled atmosphere above the pond would condense the aqueous vapour and a mist would be formed, just as mists are formed over rivers or streams in the evenings after a hot day. The name Mist, or Misty Ponds, seems quite appropriate. Those ponds which are situated at the highest elevation are certainly more successful than those in the valleys. The reason for this appears to lie in the fact that the invisible aqueous vapour is carried upward in the air currents. As the air rises into higher altitudes it expands, and this mechanical process of expansion lessens the temperature. As the temperature diminishes there is rapid condensation, and the condensation is greatest on the hill-tops which rise above the warm air of the valleys, and more especially does this condensation take place on the surface of the dew-ponds which have been artificially prepared. The hill-tops which rise into the clear upper atmosphere radiate easily and act as condensers. All must have observed how the clouds hang around near the hill-tops when the rest of the atmosphere seems clear. It is only when the invisible aqueous vapour condenses that it becomes apparent, and it only condenses when the atmosphere becomes chilled below the dew-point.

Dew-ponds appear to be only successful when constructed on a chalk bottom. Some people have therefore considered that the chalk must have some mysterious influence upon the result. This mysterious influence is, I fancy, only due to the fact that chalk is a sterile soil, and it is owing to the



absence of worms that the layer of straw can remain dry. A dew-pond on any other soil, except chalk, would be certain to fail if constructed exactly on the old methods, and it is for this reason, so far as I know, that dew-ponds are only found on a chalk formation. In the absence of a chalk formation it would be necessary to lay a foundation bed of cement-concrete, or asphalt, so that the non-conducting material should be protected against the destructive action of worms or other animals boring in the earth. A thick layer of straw is a very good non-conductor, and its efficacy lies in the fact that the cellular formation of the straw contains still air—i.e., not in motion. The rays of heat which are able to penetrate the straw structure are baffled by the still air, whereas those rays which can with comparative ease penetrate the still air are in their turn baffled by the structure of the straw. By the almost innumerable number of straw structures, with the still air in the cells, the heat rays fail to pass through the entire mass. Thus a good non-conductor of heat should be a material composed of substances of very different densities.

#### NATURAL DEW-PONDS.

During the discussion which followed on a Paper I read at the Society of Arts, Mr. W. K. Stratton spoke about some ponds in the Colesberg District (Cape Colony). These ponds, he asserted, had a higher water level in the morning than in the evening, this result being obtained during the dry season and in the absence of any springs. Mr. W. E. Abbott, in a letter which appeared in the *Pastoralists' Review* in July, 1910, speaks of a lake, at or near the top of Lagoon Mountain at an altitude of 2,000 feet, in the parish of Page, in the county of Brisbane. He says: "This lake has been the puzzle of the inhabitants for more than half a century, for it retains its water except through the most severe droughts. During the great drought of 1885-6 it dried up, and then in the most astonishing manner it filled up again before the drought broke up and without any rain having fallen on the mountain or in the district." Mr. Abbott says the top of the mountain is heavily timbered, and that this lake is not fed by any springs or streams, and yet it displays this extraordinary capacity of recharging itself before the rains come. The explanation is, if I may venture to give it without having been anywhere near New South Wales, much less on to Lagoon Mountain, that the marshy site of the lake may chill the rarefied air below the dew-point, so that the condensed aqueous vapour is deposited in the basin of the lake.

A far more striking example of the action of a natural dew-pond was given to me by Mr. Hubert Congreve in a letter dated March 7th, 1909. In this letter he says that "in 1906 he visited the Lac de Bouchet in Auvergne. It was a very hot summer, ponds and small streams were dry, the large rivers unusually low, and large trees drooping. Yet the Lac de Bouchet was brim full." He commented on this to the keeper of the little inn on the shores of the lake. "Mais c'est toujours comme ça," said the innkeeper. "In a dry summer it is always high, in a wet summer low." Mr. Congreve gave a diagram in his letter, from which it appears that the lake is circular and about five-eighths of a mile in diameter, and it appears to occupy the crater of an extinct volcano. The altitude of the lake is some 1,300 metres, and the margin of the crater is covered with pine-wood; the crater crust on which the pine trees grow stands some fifty feet above the lake. The lake is on the highest ground for miles around, with the exception of one peak three miles away, which stands at an altitude of 100 metres above the lake. The isolated and elevated position of this lake, with no higher ground within three miles of it, precludes any suspicion of a spring as a source of supply, and of course there are no streams. Even if the lake did receive a supply from such sources, it would neither explain the fact that the lake was brim full in the very hot summer of 1906, when no rain fell between May and August 14th in the Auvergne, nor would it explain what the innkeeper observed when he said that "in a dry summer it is always high, in a wet summer low." The catchment area around the lake is quite sufficient to feed a lake of such a size as the Lac du Bouchet. Professor Boyd Dawkins could not explain the phenomenon, and said he would go and see it the next time he was in the Auvergne, but whether he did so or not I do not know. The only theory to account for this natural dew-pond—for it can be nothing else

in the absence of rain, streams or springs—lies, I think, in the fact that the lake is situated at a considerable altitude, and is surrounded by a belt of fir-trees. The warm moisture-laden air from the valleys falls in temperature as it rises and expands, and it becomes still further chilled as it comes in contact with the fir-trees. The temperature of the air is reduced below the dew-point, and the moisture that the air cannot contain at this lower temperature is deposited as dew and finds its way into the lake.

#### RECENT EXPERIMENTS.

Experiments which were made by my brother and myself resulted in striking effects where we used mica as the non-conductor. We made wooden trays, 2 feet square, and painted them various colours. We also prepared square slabs, constructed from waste mica, 2 feet square and 2 inches thick. When we placed any one of our trays upon such a slab of mica, on the same night and side by side other trays, not on mica slabs, the result was that we generally obtained during the night just twice as much water in the tray placed on the mica as we obtained upon the other trays. These experiments were carried out upon a gravel path where no sign of condensation appeared. The wood with which the trays were constructed is in itself a good non-conductor of heat, and it is owing to this fact that the trays placed directly on the gravel gained some moisture. Those trays painted green or those painted white obtained the most water, whereas those painted black invariably obtained the least. The presence of chlorophyll in all vegetation, which gives it its green colour, may have some bearing on the point. The true parasitical plants, which rely upon obtaining their moisture from the trees upon which they grow, are rarely if ever green. A lawn at the side of the gravel path was wet with dew. The obvious reason for this is that the thin blades of grass, being only connected at their base with the earth, are able to radiate their heat easily, and quickly attain their thermometric distance. As they become chilled below the dew-point of the atmosphere, the dew is deposited upon each blade.

#### MODERN DEW-PONDS.

There appears to be no difficulty in obtaining water at high altitudes; but in order to test the possibility of obtaining water at a very low level my brother and I carried out an experiment on a large scale. The immediate result of this experiment was so extraordinary that I venture to give the particulars at some length.

In a flat meadow between Mottingham and Grove Park, in Kent, on perhaps the lowest lying land in the district, we determined to construct a dew-pond. We began by excavating the earth to a depth of 18 inches over an area of 100 feet square, the superficial area of the pond was to be 10,000 feet. After the work of excavation was completed we laid a bed of 4 inches of cement concrete, and in order to check any moisture rising into our pond from below we thickly coated the surface of the concrete with pitch. Mica is an excellent non-conductor of heat, and from this material we had slabs or tiles made, measuring 2 feet square and 2 inches thick, which were to be the active agents in the construction of our pond. The surface of the pitch was spread over with fine sand to make a suitable bed for our mica slabs. They were then put down in regular order, leaving perhaps an inch space between each slab. In order to keep these slabs quite dry and so preserve their heat non-conducting property, we covered the whole surface of the pond with  $\frac{3}{4}$  inch of asphalt; the asphalt ran into the spaces between the slabs, but when it was completed it presented an even black appearance over the 10,000 feet area of the pond.

When all was completed, I went in the early morning of a day in autumn to see if the pond had collected any water. Or the way I met the contractor who was returning from a still earlier inspection. I asked if there was any water in the pond. To this question he made the inscrutable reply that the "pond looked like a window." The pond lay but a short distance away, and I thought that perhaps I should learn more by my own observation than I should by asking for an elucidation of his remark. Still, his remark was so unexpected and so inexplicable that I admit it puzzled me, more especially as it came from a very matter-of-fact man.

On arriving at my pond, a most extraordinary spectacle presented itself. The pond did not look so much like a window as a great chess-board, with some 2,500 perfect white squares, all ruled off regularly by hard pitch-black lines about 1 inch wide between them. There was only the very faintest trace of dew on the grass around the pond, but not so in the pond itself. On the asphalté immediately above each mica square, tall white hoar frost was standing, but there was not a trace of hoar frost on the asphalté above the joints, which stood out as hard black lines. In the course of a few hours the sun melted the hoar frost, but we obtained hundreds, if not thousands, of gallons of water, which lay in great pools and puddles on the surface of the asphalté. It was a comparatively warm day, and the asphalté, protected as it was by the mica slabs, retained the heat, and the sun in the course of the day dried up the pond. Still, the experiment was a success, and if the pond had been laid with a fall we might have kept the water by running it off into underground tanks. This experiment, which was purposely carried out under the most disadvantageous conditions, proved the possibility of obtaining a water supply far in excess of the requirements of a single domestic house. Mica was an expensive material to use, wood or straw would have been cheaper, and these would probably have given an almost equally good result.

In an article under "Engineering Notes" on 24th January, 1919, in a journal called *The Near East* this statement appears: "A condensing reservoir measuring 100 feet by 100 feet would, it is estimated, yield an effective volume of about 200,000 gallons of water per annum, equivalent to the domestic water supply necessary for a population of 80 or 40 people. The first cost of an installation of this character is extremely low."

To obtain the best possible result from a dew-pond there are three essential points to be fulfilled:—

1. The site of a dew-pond should be on high ground, facing the moisture-laden winds.
2. The substructure of the pond should be made of the most suitable and efficient non-conducting heat material, such as straw.
3. The superstructure of the pond should be composed of the most suitable heat-conducting material, so that the heat acquired during the day may be radiated as quickly as possible after sunset.

#### FUTURE POSSIBILITIES.

Referring to the garden observation of the dew being on the grass, or fertile land, and not on the gravel path, or desert waste, it seems possible that an explanation may be found as to why certain lands are rainless. The wind passing over the ocean must absorb a considerable amount of moisture, provided it is not already saturated, and yet that moisture will pass over islands and whole districts without any rain falling. Such lands are always barren rocky or sandy wastes, like the gravel path. On such desert land there would be very little dew deposited, for the surface of the land becomes baked during the heat of the day, and the process of cooling during the night is too gradual to allow it to become sufficiently cool to chill the atmosphere below the dew-point. The consequence is that the land remains dry and parched, and yet the rough grass, that may perhaps grow in some places, becomes drenched with dew during the night; but the air, warmed by the sun's rays of the day, quickly absorbs the dew, and the earth remains parched. What the air gives up at night it acquires during the day. Unless those conditions can be brought about by artificial means which will result in chilling the air on such a large scale as actually to change the climate, there is no chance of converting the desert wastes of the earth into fertile land. But this result will ultimately be attained in certain localities by the adoption of some form of dew-pond, or condensing surface, aided by the growth of trees, I have no doubt.

Take, for instance, the islands known as the Desertas, lying only twelve miles away from the island of Madeira. Madeira, as is well known, is a most fertile island, the luxuriance of its vegetation strikes all who visit it; but the Desertas, of exactly the same geological formation, have neither springs nor rivers, and rain is said never to fall. The islands are uninhabitable except for a few fishermen,

who succeed in obtaining water by hanging out fleeces, from which in the morning they wring out the water gathered in the night. Here man, in his necessity, has applied a simple law of nature. He has compelled the air to give up that which it would otherwise have retained. These rocky islands (the Desertas), only partially covered by shrubby grass, are admirably adapted for the construction of dew-ponds; the moisture-laden atmosphere could most readily be induced to deposit its moisture on to properly prepared surfaces. The water thus deposited during the night, however, would have to be run off into tanks so as to avoid its loss by evaporation during the day. The supply so obtained should, in the first instance, be used for rearing trees. The marked effect that trees have upon the climate is not generally appreciated, nor is it generally known how admirably they are adapted for extracting the moisture of the air.

In any scheme for procuring water in waterless lands trees must eventually play an important part, if not the most important part, and, therefore, at the risk of apparently departing from the question of dew-ponds, I am anxious to show the importance of arboriculture. Wood, as I have said, is a good non-conductor of heat, but the bark of a tree is a better non-conductor. The trunk of a tree is as slight as it can be with safety, having regard to the wind pressure on the spreading branches and the foliage. This being so, the whole superstructure of the tree is disconnected as far as possible from the earth, and the non-conducting property of the bark of the trunk further cuts off the heat rays from penetrating the wood. The trunk, branches, twigs and stalks to the leaves are each in turn as slight as possible, and the leaves themselves are as thin as may be. The leaves are, in fact, to a remarkable extent disconnected with the earth, and, owing to their great superficial area, as compared to their mass, they very quickly radiate into space any heat that they have may acquired during the day. Thus, shortly after sunset, these wafers gently flapping in the air having radiated their heat, chill the air as it passes over their surface, and this chilling of the air induces condensation upon them. If, now, the form of a leaf hanging down from its slender stalk is borne in mind, it will at once be realised how the water will drop off from its pointed end and fall on to leaves at a lower level, but which have a wider spread. This action is continued until the water drops to the ground around the margin of the tree's circumference. As a general rule, the roots extend underground just about as far as the branches do above ground. On still and cloudless nights this dew which has been deposited on the leaves may often be heard dripping to the ground, watering, in fact, the extremities of the roots, though not a drop of rain has fallen, and it is only at the extremities of the roots that the tree is capable of taking up the moisture for its nourishment. Nature has in the evolution of the tree most marvellously and perfectly fashioned it in all its parts, so that the maximum of moisture may be quickly extracted from the air after sunset.

Though there is the keenest competition between tree and tree in the forest, they do in fact co-operate together to bring about such a general chilling of the air as will result in inducing rain to fall. Think of the slight chilling effect upon the atmosphere by one leaf, and this effect must be multiplied by thousands for one tree, and this again by every tree in the forest. In *The Daily Graphic* of January 22nd, 1909, in an article on the "Effect on the Afforestation Scheme," it is stated that "The Washington Elm of Cambridge—a tree of no extraordinary size—was estimated to produce a crop of seven million leaves, exposing a surface of about five acres of foliage." A cold stream of air emerging out of a forest of such trees would come in contact with the surrounding warmer air which had not been subject to this chilling process. The contact of the atmosphere at different temperatures would probably result in such a copious condensation that we should appreciate its effect in a downpour of rain.

In the Official Year Book of the Commonwealth of Australia, speaking of the direct influence of forests on rainfalls, Dr. Hann is quoted as saying: "In the Cordilleras clouds with rain falling from them can be seen hanging over forests, while over contiguous lands covered with shrubs or used for agriculture the sky is blue and the sun is shining."

This same effect I have observed on more than one occasion while standing on the high ground



near Broadway in Worcestershire. With a great expanse of distant lands and sky stretched before me, I have seen the rain falling from dark clouds hanging over the wooded lands, while the sun was shining everywhere else.

To return again to the Desertas, or the Desert Islands, as the name implies. If young trees were here planted and the extremities of their roots were irrigated with the water from the dew-ponds that might be constructed, the trees should flourish. Their foliage, in the course of a few years, would probably induce rain to fall, and after this, these desert islands would become as beautiful and perhaps as prosperous, as their adjacent island, Madeira.

There is no need to dwell on the vital importance of obtaining water in waterless lands. The famines, which result in the death of thousands at a time in India, are due to the failure of the crops in a dry season, and the loss of millions of sheep which annually die in Australia is due to the lack of water. I am confident that a water supply can be derived directly from the atmosphere, and the result may be that, in other lands than ours, the words of Kipling may be sung :

*We have no water to delight  
Our broad and brookless vales,  
Only the dew-pond on the height,  
Unfed that never fails.*

#### DISCUSSION ON MR. HUBBARD'S PAPER.

The President, Mr. HENRY T. HARE, in the Chair.

Mr. PAUL WATERHOUSE [F.]: I have much pleasure in proposing a vote of thanks to Mr. Hubbard. I need not apologise for doing so on the ground of ignorance, because there is nobody in England, save possibly Mr. Hubbard's brother, who knows as much about this subject as he does. We have all been deeply interested, and nobody more than myself. Mr. Hubbard, I am afraid, made cuts in his manuscript, and I am afraid left out the interesting description of the scientific performance of Gideon's fleece, which I wanted to hear again from his lips, because his way of explaining it is very simple and interesting. We shall all greatly enjoy reading his paper, which needs to be read thoughtfully.

Mr. JOHN W. SIMPSON [F.]: I would like to be allowed to second the vote of thanks. Mr. Hubbard has given us one of the most admirable and neatly expressed expositions of elementary scientific facts that I have ever had the pleasure of listening to. One is expected to acquire information of this kind from textbooks, but it is quite another thing to hear a practical exposition from a man who really understands what he is talking about. I think we are greatly indebted to Mr. Hubbard for his paper.

Mr. HUBBARD, Junr.: I would like to ask Mr. Hubbard what practical value the dew-pond would have in a place such as Australia, where, I understand, aqueous vapour which comes from the Pacific falls on the mountains a few miles inland from the east coast, so that the air in the centre of that continent is dry and the land barren. However much the temperature was reduced I gather that extraordinarily little moisture would be obtained from it. Would establishing dew-ponds induce vegetation under those conditions ?

Mr. GEORGE HUBBARD: My son did not give me notice of this question. As far as I understood his question, it was—Would a dew-pond in the centre of Australia be a success ? Could you get sufficient water from it to rear trees ? I can say at once it would not be a success. The aqueous vapour is deposited as the air currents rise into high altitudes in passing the mountain range, and it is therefore a dry wind which descends on the barren land to the west of the mountains. But there are curious things in Australia ; there are caves there which, in the absence of any suspicion of rain or springs, are filled with water. It comes out of the air, somehow. These caves must, I imagine, occupy elevated positions. As to Gideon's fleece, so far as I remember the record in Judges, he wanted to demonstrate that the Lord was with him. To do that he said he would lay down a fleece, and the dew would be deposited on the fleece and not on the adjoining land. On another occasion the whole process was to be reversed, so that the dew would not be on the fleece, but instead on the adjoining land. In the case of the dew being on the fleece and not on the ground Gideon must have put his fleece down early in the morning, when the earth was still cold. The consequence would be that the ground under the fleece would remain cold during the day, as it would be protected from the sun's rays, while the land around the fleece would be baked by the sun. So that on the following morning the dew would be found on the fleece lying on the cold patch of ground and the dew would not be on the surrounding land as the temperature then had not fallen below the dew-point. On the other occasion it cannot have been such an excessively hot day and Gideon must have put his fleece down in the evening, after the earth had been warmed by the

sun's heat during the day, thus the fleece was lying on a warm surface, and as a consequence no dew would be deposited on it. But the temperature of the surrounding earth did fall below the dew-point, and in this instance the dew would be on the surrounding earth, not on the fleece.

A VISITOR: Could not that result have been obtained by varying the nature of the soil on which he placed the fleece?

Mr. HUBBARD: That was not so, because the nature of the soil is given. You will find, in the Book of Judges, that it was a threshing-floor.

Mr. SIMPSON: I do not pretend to a greater knowledge of the Scriptures than Mr. Hubbard possesses, but my youthful recollection is that after Gideon had put the fleece down the first time it was full of water, and he wrung it out. And, as Mr. Hubbard has warned us, if you want your dew-pond to be a success you must not have damp between the containing surface and the ground. If, the second night, the fleece was slightly damp, it would account for the absence of condensation.

Mr. HUBBARD: The dampness of the fleece probably would have some effect, but it seems to me that the determining factor would be the time when the fleeces were put down. That is to say whether they were put down in the morning or the evening.

The PRESIDENT: I am sure this has been a most interesting paper, and quite an interesting discussion too. It seems to me it is a great pity that no attempt has been made to put this principle to practical use. I was mentioning it to a man who is a large sheep-farmer in Australia, and he was very sceptical about it. I asked him to come here and listen to the paper, but he was unable to do so. But I shall see that he has an opportunity of reading it. He said that if any man could succeed in producing a large quantity of water in Australia there is a very large fortune for him any day of his life. If such a system could be introduced into those districts of Australia which are waterless, it might be of very great value indeed. One point in Mr. Hubbard's paper I did not understand. In his description of the experiment which he and his brother made in constructing a dew-pond he described the way in which they formed the surface, and the upper surface was a black asphalt. Just before that he told us they had experimented with wooden boxes of certain colours, and that the black colour was the one which attracted the least water. If they had known that before, as I gather they did, they ought not to have used a black surface for the purpose of this experiment.

Mr. HUBBARD: You are right, sir. We did afterwards paint it with Hall's distemper, and the pond remained there a long time. But it was broken up in the winter when boys got on it and began skating.

The PRESIDENT: It is a great pity that these experiments cannot be carried further, and it is a pity some public authority cannot be induced to carry them out, because it would be of such enormous value in many parts of the world.

## CORRESPONDENCE.

Mr. Baillie-Scott's Paper.

23 Old Buildings, Lincoln's Inn: 3rd March 1919.

To the Editor, JOURNAL R.I.B.A. —

DEAR SIR,—I was unfortunate and missed Mr. Baillie-Scott's paper. I have just read it, and knowing that fundamentally we agree in the main things that matter I feel reluctant to write about the few points where we appear at any rate to be at variance.

Mr. Baillie-Scott says: "It is no use telling me that if a thing is fitted for its purpose it is beautiful. If instead of colour-washing an old stone wall we had cemented it over to a nice level surface ruled over with lines to represent joints it would answer the purpose well enough, but all the beauty and interest of the wall would be lost." "And so, when practical merits are claimed for ugly methods we must urge that the problem is only half solved, and that the worse half." I cannot admit that a result is practical unless it achieves a great deal more. There is one big principle common to all design—namely, consider the scheme first as a whole, then perfect the details, making them in harmony with the whole and with each other. Only he who can do this—poet, architect, sculptor, painter, engineer, soldier, musician—deserves the name of artist, and nobody else can be practical in the proper sense.

Architects, broadly speaking, follow one of two maxims. One is, make a thing right and it will be beautiful; the other, make it beautiful and it will be right. The former is adventurous and open to new methods and conditions, but ever alert to learn from the past. The latter is apt to lean too heavily on taste and precedent, and be ill prepared for fresh impressions. I think Mr. Baillie-Scott in his paper looks back too longingly. No man is big enough to do great things unaided by his generation. Napoleon was beaten, not because he lost a battle at Waterloo, but because he no longer held the will, the affection, and the confidence of the French nation and army. And so in art, as ordinarily understood, the highest must always express, amongst other things, the nation and the age to which it belongs. The great artist, even when giving his best, receives from his contemporaries more than he can repay. I think this is rather like what Mr. Lethaby meant when he spoke of the need of "a thousand men deep."

In architecture, one of our biggest difficulties, as Mr. Baillie-Scott said, is to find workmen trained to the appreciation of the qualities of materials and workmanship. We know where to go when we want craftsmanship of the highest order, but in the case of everyday masonry, bricklaying, and carpentry very few satisfactory men can be found because the ordinary tradesman has been taught to take pride in many of the very things we abhor. We are a good deal to blame for this. We have allowed "building construction" and "architecture" in the technical schools, etc., to become estranged without much protest. But I

still hope we may find a remedy. Could the R.I.B.A. find an association for tradesmen to be nominated by a number of architects under whom they had worked? Another condition of membership might require candidates to attend a short course on building ideals to be given at approved schools under supervision of the R.I.B.A. Perhaps in a few years a new clause insisting on membership of this association would be added to the official form of contract.—  
Yours faithfully,  
S. B. CAULFIELD [F.]

## WALTER ERNEST HEWITT [A.].

It is with sincere regret that I have to record the death of my friend Walter Ernest Hewitt, which took place upon February 19th last, at his residence, 28, Thornton Hill, Wimbledon, after a brief illness—septic pneumonia, following an attack of influenza.

Walter Ernest Hewitt was the third son of Mr. Walter Hewitt, a well-known resident of Surbiton. He was a comparatively young man, having been born on 3rd October, 1865. He died in harness in the 53rd year of his age. Educated at Haileybury, he served his articles to Mr. Rowland Plumbé [F.], 1883–1886; sat for and passed the examination for Associate R.I.B.A. in 1889, and commenced practice about that year or a little earlier at 7, Great College Street, Westminster, now demolished. Here it was we met, and here it was that we joined hands in the competition for the Surbiton Municipal buildings, our design being placed second by the assessor, the late Mr. Mountford.

His was a general practice. All he carried out, no matter what, from a parish hall to a shop front, was in good taste. From the first, however, he specialised in domestic work, and it is therefore to this side of his practice that we must turn to see him at his best. A clever draughtsman and detailer, an able planner, a very thorough man, in short, in all he undertook, is the best description I can offer of Walter Hewitt.

So many of his designs in and around London have appeared in the journals that it leaves me with little to add, except it be to refer to such of his works as the house he built for Mr. Percival Graves—known to us all as the author of "Father O'Flynn"—and the "Dormers," Bovingdon, Herts, the entrance court of which house appeared on the Academy walls in 1910, as being typical examples of his work.

Walter E. Hewitt was of a retiring nature, and it is therefore left to his many friends who knew him in his home to say what a genuinely kind man he was, and what a delightful companion he made when talking over his treasures, collected as a collector knows how to collect only. To see his books, prints, pictures and china was a real treat. He was a great bird-lover. No man in the world was a greater authority in the particular strain of pigeon he bred and developed in the spare hours granted him as a busy man.

A. HERON RYAN-TENISON [F.].



9 CONDUIT STREET, LONDON, W., 22nd Mar. 1919.

## CHRONICLE.

The R.I.B.A. Record of Honour: Sixtieth List.

*Fallen in the War.*

HARTREE, Lieut. E. M., R.A.S.C., attached 8th Royal Berks Regt. At first reported missing, and subsequently killed in action, Aug. 8th, 1918. (Son of Mr. J. Hartree [F.]).

*Military Honours.*

RHIND, Brevet Lieut.-Col. SIR THOMAS DUNCAN, K.B.E. [A.].

Mobilised as a serving Territorial (Major 5th Battn. the Royal Scots) on the outbreak of war, and shortly afterwards appointed to the General Staff as Brigade Major. Called to War Office August 1916 and in December 1917 transferred to the Ministry of National Service, where he now holds position of Chief Recorder. Promoted Brevet Lieut.-Colonel June 1917. Received Order of Commander British Empire January 1918, and Order of Knight Commander British Empire January 1919.

ANSELL, Capt. W. H., R.E. [A.]. Awarded the Military Cross and twice mentioned in despatches.

TAYLOR, Major J. A. CHISHOLM [Student], son of Mr. Thomas Taylor [Licentiate], has been awarded a Bar to the Military Cross.

"For conspicuous bravery. At Briastre on 20th October 1918, on reaching the final objective, and finding that the leading company was being enfiladed by an enemy machine gun, this officer took forward two men and a Lewis gun under heavy machine-gun fire. He put the gun in position, but was unable to get it to fire owing to the mud. He then brought up a German machine gun; this also he could not get to fire. He then went several hundred yards under very heavy machine-gun fire to obtain rifle grenades. These he fired and, going forward alone, shot two of the enemy with his revolver, the remainder running away. This officer's bravery and promptness of action ensured complete capture of the objective."

*Sir Frank Baines on War Factories.*

Sir Frank Baines's exceedingly interesting and valuable lecture on "War Factories and Sheds: their Construction and Adaptation to Future Needs," was only partly delivered at the meeting of the 17th. Sir Frank lectured for two hours, showed a large number of slides, and managed to condense an enormous mass of detail into a small compass, but it was evident that the subject was too vast to be dealt with at one meeting, and it was decided to

adjourn and to arrange for the remainder of the lecture to be delivered later. The date has now been fixed for the 28th April, the meeting to be held at 8 o'clock instead of 5. It may be mentioned that the most important part of the subject, that dealing with the adaptation of these remarkable buildings to peace purposes, has still to be dealt with.

#### Architecture and the Office of Works.

As briefly noted in the last issue of the JOURNAL, a deputation from the Institute waited upon Sir Alfred Mond at the Office of Works on the 12th February. The deputation consisted of Mr. Henry T. Hare (President), Sir Aston Webb, P.R.A., Mr. Ernest Newton, R.A., Major Harry Barnes, M.P., Mr. John W. Simpson, Mr. John B. Gass, and Mr. Max Clarke. Present with Sir Alfred Mond was Sir Lionel Earle, K.C.B., Secretary of the Office of Works. The following is a brief résumé of the proceedings.

Mr. HARE said that the Institute and architects generally throughout the country beheld the increasing activities of the Office of Works with considerable anxiety. It was not in the public interest that important Government work should be confined entirely to the operations of a Government department. During the last four years architects had been practically deprived of their livelihood, but now that Peace was in prospect they looked forward to some amendment of former conditions, and trusted it would be the policy of the Government to distribute such work as might be available amongst the profession generally.

Mr. JOHN B. GASS [F.], Past President of the Manchester Society of Architects, strongly deprecated the increasing encroachment of the Government departments on the legitimate concerns of the general practitioner. A purely State service, he argued, tended to the acceptance of what its official offered. In architectural work particularly there was not in that service the competitive thought or individual necessity for effort which was so essential in the successful maintenance of a private practice, both in regard to economy of construction and architectural development and expression. The State and the municipalities should, in the national interest, take advantage of such practice in connection with their building works. The Royal Institute and its Allied Societies had for many years striven for a high standard of architectural education. The Universities and the schools throughout the country were spending large sums on architectural education. Unless there was opportunity to bring this education into practical effect, much of it was lost, for it had to have freedom of expression, and this could best come through personal effort. The architectural profession in England had never been properly utilised by the State. Unless there was opportunity, it could not be expected that the best men would be attracted to the profession. In the national interest it was desirable that in the architectural work of the nation opportunity should be given for utilising to the fullest extent the services of architects engaged in independent practice, and particularly those who were specialists in various classes of work. The Government and municipal departments dealing with buildings should become more consultative and advisory: they would then be in a position to render the best national service.

Mr. JOHN W. SIMPSON [F.] urged that for a great Government department to undertake work by which a considerable section of His Majesty's subjects depended for their livelihood was to inflict upon them a real and very

grievous injustice. [The real basis on which the glory of a great department rested was not the aggrandisement of its scope, but regard for the public, and particularly of that section of the public which, by reason of its special training, was best fitted to judge of the measure of fitness of its work. It was not meet that a State department should undertake the work which a great profession was qualified to carry out, and without which they would be unable to fulfil their proper duty as citizens towards the State.]

Major HARRY BARNES, M.P., said that the deputation had come really in the interests of architecture. A great nation should have a great architecture, and Sir Alfred Mond was in a position to ensure that in the time they were entering upon the nation should be represented by a great architecture. To get a great architecture two things were necessary: a great impulse and an ample command of funds. The great impulse in the future would undoubtedly come from a new conception of the functions and duties of the State. That impulse would find its expression in the buildings which were put up by the State, whether in its local capacity or in its imperial capacity, to carry on its functions. But it was not sufficient to have this great impulse and an ample command of resources. They must have great architects; and it was impossible to have great architects unless they had a great school of architecture, and the great training school was practice. They wanted the Office of Works to feel its responsibilities as having the opportunity of stimulating the architectural capacities and powers of this country. What was done by the Office of Works was really a standard for work throughout the country. If the Office of Works considered that its architectural work could be done by its official staff, other official bodies would be likely to follow its lead. But if there was to be in this country a full expression of the architectural capacity of the country, there should be no reliance on official staffs, no matter how efficient. Architecture, after all, was an individual matter: it was not one which could be controlled in a routine way. As regards the specific question of building post-offices, he would have every local building designed, as far as it could be designed, by the architect in that locality. And, according to the scope of the building, its character, and the purpose it was meant to serve, he would draw in a corresponding number of men to compete for it. Architects felt that the Office of Works, by taking a large view of its position and its influence upon architecture, could do a great deal to make for it a future at least equal to, if not surpassing, its past.

Sir ALFRED MOND said that it was not merely a question of architects, it was a question of business organisation and of economy in carrying out work. The last work in contemplation before the war was a Board of Trade Office, and the competition for that was gained by an outside architect. The tendency in his department had been rather not to undertake any large buildings, but he had not yet made up his mind whether that was altogether wise. He certainly thought that if there was to be competition the departmental staff might be as much entitled to compete as people outside. The ability was there, but it had not had a chance of expression. He felt that architecture in England wanted a big lift up, and, from that point of view, he was entirely in sympathy with the view of the deputation. But he thought they had suffered in the past from want of concentration. There should be one considerable department, but it was very difficult to lay down its exact limits.

Sir ASTON WEBB said it was recognised generally what a wonderful work was done by the Office of Works during the



war in carrying out buildings of various sorts, and in an extraordinarily short time, and, no doubt, very well. But if that was to continue and to increase, what was to be the future for architects, or the future of architecture generally? And if Government buildings were to have priority, as well as housing, and the whole was to be carried out by Government departments, even private work which architects at present have would be stopped and architects themselves would gradually be absorbed into the Office of Works. Instancing post-offices, these were special buildings, and the Office of Works knew their exact requirements. If the Department were more of a consultative than an executive Department the general requirements would be given to a local architect, who would be able to submit his plans and have the advantage of official criticism. A proper variety and local character would also be given to the work, which would be distributed over the country. The Education Department worked in that way. All schools erected had to be passed by the Board of Education. The drawings went there, and, after being criticised and altered several times, finally were brought up to the standard of the department. He had always maintained that the intention in holding a competition was to discover the best architect, not to select the plan and have that plan carried out exactly as designed, because it must be altered by those who were to use the buildings. There was in the architectural profession a feeling of soreness and to some extent a sense of unfairness. The Office of Works had endless means at its disposal. What chance had an architect, with heavy rent and staff to pay? He was under a great disadvantage. If the Office of Works could take up the position of a patron of architecture and give a helping hand to the young man who showed distinction, by giving him a post-office to build, for instance, it might set him up for life.

Sir ALFRED MOND: To some extent we try to do that. We gave the Victoria Tower Gardens scheme to an outside man. We have never taken up the attitude of religiously conserving everything for the Department.

Sir LIONEL EARLE said the increase in the work of the Office of Works in the last few years was due to war needs. In a general way he did not think their work had increased. Every big building during his period of office, with the exception of one—the Armament building—commenced by his predecessor, had been built by an outside architect. All the other buildings, even the extension of the British Museum, had been done by an outside architect. In regard to outside architects doing post-office work he saw definite difficulties. When a post-office was being designed, his department was in daily consultation with the Post Office officials on the lay-out, and he did not see how a Manchester man, a Liverpool man, or a Bolton man could come to London every two or three days and attend to their instructions. Another important point was the strict financial control by the Treasury. He used to be a strong advocate for the buildings going to outside architects, but from personal experience since then of the appallingly unbusinesslike methods of some outside architects they had had to deal with, his opinion had been modified. He was out for getting the best results. He did not hold that the Office of Works of necessity made the best designs. And, to open up another question, he could not help feeling there was a weakness elsewhere than in the Office of Works. The biggest school of architecture was in America. He had been in touch with American work, and one reason of there being such a virile school there was that the students had been trained at the Ecole des Beaux-Arts, Paris. The men

sent there had genius, and, as a result of the training on that, they produced fine things. Our schools were not comparable with the French schools. [Mr. Hare: They are not, Sir. They are subsidised in France; they are not here.] He had pressed the Government to attract those who had won the English Grand Prix de Rome into this department, so as to improve its standard of architectural design, which was in many ways deficient, and he had put in a Minute to the Treasury to that effect, but there was a good deal of prejudice about it. The tendency outside was to think that because you are in a Government department you must become stereotyped and hidebound.

Mr. NEWTON: But a man has to become anonymous when he is in a department: the work is turned out by the department, not by a particular man.

Sir LIONEL EARLE: Designs have been shown at a Royal Academy Exhibition and elsewhere under the name of the architect. I have here cases of drawings shown under the name of the architect. We had a little exhibition this year in the Office, of water-colour sketches by our architects, and I was amazed at the kind of work, better than you could see in many of the galleries in London.

Mr. HARE: I know you have an extraordinary amount of talent in the Office of Works. And there is a reason for it. During the war, architects have been driven to seek posts in the Office of Works in order to get a livelihood. I am sure that, speaking broadly, if a man with the artistic temperament be put into a permanent position with a definite salary he becomes demoralised.

Sir ALFRED MOND: It depends on the strength of the artistic temperament in him. If he has that you may put him into a dungeon and you will not demoralise him. But, of course, there may be a tendency in that direction. I would not like to see every architect in the country in a Government department: far from it; but I think there is a little exaggerated fear as to the situation. I think it has arisen partly in regard to the housing schemes. But this department has nothing to do with housing schemes, and I do not know that it is likely to. The Local Government Board have appointed their own expert architect.

Mr. NEWTON: The Office of Works has had much work to do during the war which necessitated organisation and a highly skilled staff, and, being apprehensive, we have come before injury is done. We want to show that it is not so much for architects we feel as for the future of architecture. We feel that the young student has no great incentive unless he knows that he may, some day, be called upon, in recognition of his talent, to build some large public building. That is something to work up for. If he goes to various schools of architecture and spends money and strenuous years and, after all, does not get any share in important public work, it does not put architecture on a very high ground. We want the Office of Works to encourage the private architect, as is done in France.

Mr. HARE: We came here with the impression that the tendency of the Office of Works is to enlarge the scope of its operations. And if you can assure us that that is not the case or the intention, we shall go away pleased.

Sir ALFRED MOND: I cannot commit myself as much as that. It is very difficult to define the limits of my department's work. Supposing, in regard to the housing schemes, we found there was a certain area of housing not being done, and this department was told to go ahead and do it,

It is not for us to say "We cannot do it; it must be done privately." As regards local architects, some districts have not got architects who could handle a big scheme.

Mr. HARE: It is not merely a question of local architects, but independent architects, architects who are not official. An architect living a hundred miles away might very well carry it out. We are trying to ensure that the housing work shall be in the hands of architects, but how far we shall succeed remains to be seen.

Sir ALFRED MOND: I hope you will. I have a great deal of sympathy with you, I assure you. But I have to consider my own faithful and loyal staff.

The President having thanked Sir Alfred Mond for the courteous hearing he had given them, the deputation withdrew.

#### Professional Problems of the Moment.

A Special General Meeting, summoned by the Council to consider some of the professional problems of the moment, was held on Monday, 10th March, the President, Mr. Henry T. Hare, presiding.

The PRESIDENT having stated the object of the meeting called upon Mr. Gammell to open the discussion.

Mr. K. GAMMELL [A.]: Before I address myself to the particular business which brought me here, I should explain my position in the matter. In common with other members who have had something to do with the governance of the Institute, I have, for some considerable time, received a large number of letters from men, not only in this country, but outside it, asking me what is happening in the profession, and what is likely to happen, as well as offering suggestions as to procedures which might be taken. In approaching this matter I think it is advisable to enumerate five facts which I have kept before me in preparing to speak on this subject: First, I recognise fully, as was pointed out by Dr. Addison in addressing the deputation from the Institute, that our profession does not—to speak colloquially—represent the only pebble on the economic beach. Second, I realise that our greatest, if not our only, claim to the fullest consideration and sympathy from the community lies in this one point, that all ranks of the profession have at the cost of much time, expense, and trouble tried to fit themselves, so far as they can, to best serve that community. The third is—and this also has been admitted by Dr. Addison, as far as I read the report of the deputation's reception—that our profession has been more hardly dealt with than any other. The fourth is my belief, on the facts, that what I have stated creates a particular claim by our profession for exceptional consideration and sympathy. The last point is that the great reconstruction schemes which are going forward will be judged by those now living and those to come purely from that particular professional standpoint. And I suggest it will constitute, apart from the question of common sense, the most rank injustice to our profession if we are not given the fullest possible hand in carrying out those schemes. In considering the disabilities affecting our profession I divide the members into three classes. The class which undoubtedly has a prior claim to consideration constitutes those whom I would term the Service members. (Applause.) Of those who patriotically served during the war, a very considerable number find themselves in the position of having to begin their work again *de novo*. I cannot imagine any more parlous case than that of the Service member. The second class I would call the civilian architects, and they form by far the larger proportion of our

members. And although I suggest their case is not as bad as is that of the Service man, still I think it can be claimed that it is particularly bad. I would like to touch on one criticism which was offered by someone with whom I was discussing this matter. He said, "I grant what you say of the independent architect, but what about firms? I know a member of a firm of three, two of whom were forced to give up the work and take up something different from architecture, work which removed them from their localities. But one was left behind, and should have been able to keep together the threads or remains of the architectural practice." But I pointed out to him that, thanks to the legislation of the last three years, it was impossible for any man to keep an architectural practice together. That, I think, is a fair statement of fact. Therefore I suggest that this particular class is entitled to the fullest and most sympathetic consideration of the community. The third class is the civil servant, embracing not only those in Government employ, but also those working for municipalities. These can be further subdivided into two categories, the permanent and the temporary. With regard to the former, I do not think he comes into the picture at all. He is to be envied, in that he had found for himself what I suppose is congenial employment. At any rate, he was unaffected by the problem of finding work. As for the temporary civil servant, there may be something to be said for him; but I cannot bring myself to believe that any man who has "made good" in his wartime work is at the present moment in any danger of immediate unemployment. With the huge Government schemes which have to be at least licked into shape, it seems to me that the majority can look for a reasonable continuance of their employment, until better times come. Those are the disabilities of the members, as I see them. What are the palliatives which offer? I am aware that what has been euphemistically called the £500 limit has been removed, and certain embargoes on raw materials and dealings in the markets have also gone. That might suggest that normality would return very shortly. But is that the case? I suggest, from the authoritative pronouncements which have appeared in the public and in the technical Press for many weeks, and are still appearing, that normality is not likely to be reached in the immediate future. The question then arises, Can we put a period as to when normality is likely to happen? My work for the Government has, for the last five months, taken me into five of the Home Counties, and I have lost no opportunity of sounding every man who employs labour or is employed in the building trade and is in an authoritative position, as to what his beliefs were in regard to the restoration of normal conditions. And I am sorry to say that the consensus of opinion is that this cannot come about for at least two years. There are three reasons given for this. I shall touch only lightly on the first two, the third I want to dwell on more fully. The first point is the labour troubles. The second point is the difficulties in markets and in imports of raw material. The third point, the most important of all, is that, owing to the legislative measures of the last decade, the confidence which the public at one time possessed in the value of building as a reasonable and safe investment has been shattered (applause), and until this Government, or any other, can be made aware of the fact and by legislation restore this greatest of all industries to its proper position, there will continue to be an inequitable state of things. The men whose views I have given are men much more experienced than myself, and I do not doubt them. We are up against this fact, based on good opinion, that normality is not yet likely to come about.

Then what offers? And here I would say that I have come here not to direct the meeting, but hoping to be directed, and that I shall be given some information of a reassuring kind. But, above all, I hope that some action will be taken to-night which will constitute an attempt to bring about a better state of things, not only for our profession, but for all those who build, and I should be glad to be permitted to propose a certain resolution. Much as we all appreciate the efforts which the Council have made during these last years of the war in doing their best for our profession, I think we might go still further to gain this end by calling together all those bodies connected with the building industry, to consider the question of these great schemes which are coming on; and at that meeting prepare some form of memorial, or decide upon some action which shall have, as its major point, the great end of restoring confidence in the public mind as to the value of bricks and mortar. I believe there are men, within and outside this Institute, who can help us more than they have done, and I suggest it is up to every man who believes in the justice of his cause and who realises that we have been very hard hit, to fight, tooth and nail, for more equitable treatment than has been accorded to us in the past. I now propose formally, "That this Institute should, as the oldest, and only chartered, body in this kingdom representing Architecture, take steps to call a meeting of all those bodies which, in the opinion of the Council, should be invited to a meeting in London; and it should be the business of that meeting to consider the best steps to bring before his Majesty's Government the great need for legislation which shall, in some measure, go to restore public confidence in the building industry." That is the general idea; I was not prepared with a resolution.

Mr. W. HENRY WHITE [F.]: I will second that resolution for the purposes of discussion, but in doing so I would like to ask Mr. Gammell if he will put something more definite into it. Does he mean the repeal of the Finance Act, 1909? That has been the greatest stoppage the building industry has ever been subjected to. There is no doubt that the passing of that Act has tended to reduce building to a very great extent, and has resulted in people sending their money to foreign countries, instead of investing it in bricks and mortar at home.

Mr. MAX CLARKE [F.]: I would support Mr. Gammell's resolution, Sir, but I do not think it is desirable to tie the hands of this Committee if they are appointed. They should be given the broadest possible reference, and the Finance Act, of course, is only one of the points. With regard to the question of normality, I think that, for the moment, we have arrived at normality, at any rate, for a very considerable number of years. I do not expect that in my time materials of any kind can be had cheaper than they can be obtained at the present moment. I do not think that the wages of the workmen will be reduced. Last Saturday week all the members of the building trade got an advance of practically 2d. an hour, bringing them to what they call a "flat rate." That 2d. an hour gave the better-class tradesmen as high a wage as 1s. 9½d. an hour, and the average men—bricklayers, carpenters, and so on, to 1s. 9d. an hour. I do not see why that 1s. 9d. should be reduced, or how it can be reduced. When these things have once arrived at this stage it is very difficult to bring them down. Personally, I have no objection whatever to the bricklayer getting 1s. 9d. an hour. The only thing I object to is his doing as little as he possibly can for the 1s. 9d. (hear, hear). That is our difficulty. I had the prospect of getting some work to do. It was a small fac-

tory which was to be built at once. [My clients asked what it was likely to cost, and after considering the matter I told them that at the beginning of 1914 I thought this factory would have cost between £3,500 and £4,000, but that it would now cost between £7,500 and £8,000. Two days after that came this 2d. an hour increase. I have had 1½d. an hour increase, and I found that, as nearly as possible in the ordinary way, it comes to about 4 per cent. on the amount. I had to tell my clients that the additional 2d. would come to another 4½ per cent., or practically 8½ per cent. more than this time last year. The result was that the matter was postponed indefinitely. There are a certain number of people who would build because they have to build, or they make money by building, but perhaps not at those figures. Turning to the question of the housing of the working classes, it is a practical impossibility to build a house now for a workman which can be made to pay any remunerative interest at the present prices. (Hear, hear.) Of course, if a workman makes £5 a week he could afford, if he was careful, to pay £1 a week for his house, but that would be large. If he paid this £50 a year it would not be a very great interest on a house which cost £400 without the cost of land or the little etceteras which mount up when one is building a house. So the only thing one can look forward to is the Government assisting the various bodies who will build workmen's houses. The only thing I find it difficult to make up my mind about it is, that architects, and town-planners and all these sort of people, talk such a lot—every paper is full up with talk—but there are no realities, there is no practical outcome of all the talk. You say you must not build more than twelve or eight houses to the acre, you must give a man a garden, you must put down grass, you must give him a bath, and so on. But all that kind of thing does not do good. All these competitions do not do any good. (Hear, hear.) I think I could make drawings for a dozen cottages which would not be a disgrace to me, which would be moderately convenient, but I do not think my client would make any money out of them. As to the solution of these problems I cannot offer a suggestion; it seems hopeless. I have actually seen it proposed in one of the building papers that the accepted standard of building materials should be lowered. So far as the position of architects is concerned, until all ranks among them band themselves together—(applause)—to try to do something for themselves they will be no better off. We are all too isolated, and we shall never be in a better position until we combine, whether by means of registration or not. It is to the rising generation I would address my remarks. Until the rising generation do something for themselves they will always be taking a back seat. [To take a recent happening. I hate to talk about it, but I think an architect ought to have been put into Sir James Carmichael's position. I am not afraid of saying it, because I think it. But he would have to be an exceptional architect.]

Professor S. D. ADSHEAD [F.]: I wish to say a few words, Sir, as I humbly represent one of those loquacious architects whom the last speaker mentioned as having talked a great deal and done nothing. I think the present situation has arisen because we, as a body, have not talked enough. Whilst I cannot, in all respects, support the resolution which has been put forward, I feel inclined to support it in the main. To criticise it in detail, I feel that it is, perhaps, too general, and so it is likely to lead nowhere, being liable to drift towards what one might describe as "high politics." Because, after all, when the question of the possibilities of building is carried right to the point, it rests upon

world-questions of labour and material, over which we, as a body, cannot possibly have any control. I feel we, as a body, are perhaps a little pessimistic at the present moment. Naturally this is a period of great stagnation and hesitation; but I feel sure that that time will pass. Whilst I feel there is every reason for doing all that we, as a body, can to bring to the notice of the general public the importance of the profession, I feel that the more important thing is to hold hard unto those more immediate assets which are in front of us at the moment. The last speaker pointed out that the immediate asset was the housing, and it is with that I have been most intimately concerned. I feel the time has come when we, as a profession, ought to direct our final efforts towards securing that all the housing work done is done under the direction of architects. I have been one of those who have been associated with the President during the period of the war, or at any rate during the last two years, in doing all that we possibly can to bring this housing into the architectural profession. And those who know what has been done I am sure will agree that the President has exerted every effort, and successfully too—(hear, hear)—in bringing that about, and now, I think, is the time for the final coup. I attended an important meeting of the delegates of Local Authorities, at the Local Government Board, when the general matter of the housing question was discussed with Dr. Addison. And Dr. Addison pointed out that a paper was shortly to be sent out to Local Authorities stating that the work was to be done by architects. And although he did not actually say that it would be made compulsory, he went as far as he possibly could in that direction. This, with that very important fact which would appeal to Local Authorities more than any other—namely, that the charges for outside experts would be placed to the credit of the National Exchequer, while charges of the officials would be placed to the rates, gives us an enormous hold on this housing work. I think that argument has not been sufficiently placed before the public, and if anything could be done, either by the formation of a Committee, such as Mr. Gammell points out, or in any other way, to bring to the notice of Local Authorities, and if possible, though more difficult, to the general public, that the charges for the preparation of plans of houses and schemes would be on the country, and not on the rates, I think it would have an enormous influence in still further promoting the objects of architects.

Mr. ARTHUR KEEN: I do feel that what Professor Adshead said about the payment of architects coming out of the Government contribution, and the payment of the Borough Surveyor for these schemes coming out of the rates, is a very important matter. Much good would be done by calling the attention of the provincial societies to that fact, and letting each rub it in with its particular local Council. I take it that the great cost of building at the present time is due partly to the shortage of labour, which will be put right when general demobilisation is complete, and partly to the fact that there is a great scarcity of bricks, which, I hope, will be made up this summer. At any rate, before long the prices of bricks will come down very materially. Another element in the costliness of building is the great price of timber, which is very largely a question of tonnage. I think it will be a little longer time before that is put right, because the ships must be occupied first in bringing back food and in repatriating troops. The timber is there, and as soon as ships are free it will be at once available, and then prices will come down, unless wages continue to go up, though that is unlikely, because com-

petition will be rather severe among the working classes when demobilisation is accomplished. I think Mr. Gammell should tell us exactly what it is he is up against when he suggests that the Government should be invited to restore public confidence in bricks and mortar as a form of investment. I agree that it is desirable public confidence in them should be restored, but, so far as I know, the only thing that militates against it which the Government is responsible for is the Finance Act, Form 4 and the rest of it, providing for the taxation of increased land values. That, no doubt, put a stop to the speculating builder's work long before the war. If the repeal of that is what Mr. Gammell wants done, I think he should tell us so plainly, and I think he would have the sympathy of everybody. Apart from that, I do not know what there is that the Government can do. But in that connection I would suggest this: that the Finance Act has hit building very hard, but it is the speculating builder's work which it has specially hit, and that trade is one which the architect is not concerned with. ("He should be.") There is very little architecture in the work which the average speculating builder does: generally speaking, nothing. The effect of it has been to stop all building for the working classes until the scarcity of dwellings for them became so great that the Government insisted on the Local Authorities dealing with it themselves by offering a subsidy. This had to be done on a large scale, and architects have been employed up and down the country in all directions on housing the working classes, which is work they would never have touched if it had been left to the speculating builders. So, in a sense, though I agree that the working of the Finance Act has been disastrous for the country at large, I cannot think that, for our profession in particular, it has been a bad thing—in fact, I think it has been the reverse. Mr. Max Clarke criticised the town-planning section of the community for their much talking, and he felt that nothing came of it. But a great deal has come of it. Until these gentlemen did their speaking, town-planning was not done, by architects at all events. And now the effect of it is that every scheme in connection with these big undertakings in housing has to be laid down and has to be dealt with by architects, sometimes by the Borough Surveyor: at least it is done by a man of architectural attainments. Generally speaking, I think it is done by architects. That has been a result of those interested in town-planning pegging away and insisting that it was desirable. The Council is anxious to do everything in its power to move things, so that they shall get into a better groove. But I do not see what we can do at the present time except getting the Finance Act put right, and even that, I am afraid, is not going to help us very much. Anything we can do to urge the Government to release all materials in their charge and put them on the market freely would do good. I think the Government has got enormous stores of timber, but as they bought at high prices, they do not want to release it at prices which would show a loss. I do not think showing a loss matters; let them put the timber and other materials on the market, and then things will begin to move. What we want are practical suggestions as to the way in which action can be taken to move the responsible authorities.

Mr. W. HENRY WHITE [F.]: Mr. Keen suggests that it is only the speculating builder who has been hit by the Finance Act, but there are other types of speculators—half London has been covered by the speculator. The huge blocks of flats and the large commercial buildings in London are mostly built by speculators, for profit-making purposes. They take a site, put up a building and



let it on the chance of making a profit. Millions of pounds have been spent in London in this way, and it is that money which has been diverted to other channels by the Finance Act. On this matter I can speak with some authority, because I come across it in my own practice. It is almost impossible to finance a building under present conditions. What I want to emphasise is, that it is not only the speculating builder who puts up workmen's dwellings who is hit, but the large number of the public who normally put their money into building operations.

Captain C. W. LONG [A.]: As a Service member I would like to say a word or two in support of the resolution, which, I think, should not be made any more definite, for it roughly embraces all the main points laid down. Two members have spoken to-night on the employment of architects in town-planning and such-like public undertakings. That is, at best, only a temporary measure, and it is a concession, not a right. I take it we are met here to-night more or less in our own interests, and, also, in our clients' interests. There is abroad a distinct feeling of unrest, whether it is because of the Finance Act, or the fault of the client, I do not know. The unrest does not originate in the high cost of building or of land, nor the abnormal charges for materials, it is due to Government intervention; however helpful it may appear to be to the working classes, it is, in the main, a definite hit at private enterprise. (Hear, hear.) I could instance various undertakings which, even now, would be put in hand but for the fact of pending Government enquiries into the profits and workings of organisations with the possibility of their being taken over by the State. That does not encourage a large business house, or a large insurance company, or even a bank, to indulge in private enterprise. I think it is all to the advantage of the proposed committee that its scope of enquiry is suggested on broad lines, for it is when a number of societies meet together knowing they have been given a free hand that they can then bring to light various grievances not immediately in view in the first instance. I would have such a committee go so far as considering the question of registration for ourselves, in order that we may be in a position to say that we, and we alone, should be engaged in the beautifying and the building of London, that we should be considered worthy of the responsibility of building for future generations, and so carry on with a clear right, and not as a concession.

Mr. D. B. NIVEN [F.]: I agree with the last speaker that the principal thing is to restore confidence, and if, by removing disabilities, that can be done it will be a very good thing. Still, even under existing conditions, there is much buying and selling of property going on, largely because owners do not realise that if they sell at something like pre-war value, they are giving a handsome profit to the purchaser. With regard to the increased value of buildings in the future, Mr. Max Clarke rather alarms me by the suggestion that prices are about normal now. If that were so, I think some of us would behave differently. The tendency is to choke off clients, and delay in going ahead because prices are abnormal. If it were true that the present figures are normal, we should not advise clients to wait. I feel that the present standard is a very abnormal one, and I therefore agree with Mr. Keen that the prices of many things will come down, and that the advance on pre-war rates should be about 50 per cent. instead of 100 per cent. as now. Professor Adshead's point that the cost of the borough official's work in carrying out these housing schemes will come out of the rates, but that private

practitioners would be paid by the Government, is a most important matter and one which should be pressed home, and we should take steps to bring it under the notice of allied societies.

Lieut. SCOTT COCKRILL [A.]: I wish to put in an amendment to the proposed resolution, namely, "That the Council consider the advisability of forming amongst the whole profession a union, on exactly similar lines to that already formed by the medical profession." What happened to the majority of young men when the war broke out? We were hustled into the Army. We were qualified architects, fit to take commissions in the Engineers, but we had to serve in the ranks, under unqualified men. The Chartered Accountants' Institute, however, came forward and took the Government by the throat; and that is what we shall have to do if we want to move them. We shall only be able to do that if we have a strong Union, and compel them to recognise us and the fact that we have at least the right to live. Until we do something like that we shall get no farther than we have in the past, which, to my mind is nowhere at all.

Mr. P. M. FRASER [F.]: The amendment is admirable, and an improvement on Mr. Gammell's, as I think he will probably agree. I understood Mr. Gammell to ask for a conference, not for a committee, and a conference is a vastly superior piece of machinery for this object. That conference should not consist of ten, twenty, but of several hundred. Every member of the profession should be approached, every class of the profession should be invited: the extra-mural men, allied societies, and societies not allied particularly should be asked. This will be an opportunity, once and for all, to crush the antagonism which exists between this Institute and the Society of Architects. I am sorry to say, with all due deference to the Council, that there has been unmistakable evidence, in the last two or three years, of studied snubs being offered to the Society of Architects, and whether they were intentional, or whether they grew out of ignorance about the Society's work and objects which exists on the part of the Council of this Institute for several years past, I do not know. But they were snubs, to the verge of being insults.\* And they have caused the very worst feeling. Feeling was bad enough in 1914; it is worse now. The Institute and the Society of Architects must come together. They are overtaking us very rapidly: are very much more alive than we are, and transfusion of new blood with the somewhat effete and colourless blood which runs through the veins of the Institute at present will have a very excellent result. This conference should deal with every possible point which members can bring forward. We ought even to report on the value of tariff reform to the profession. We want to restore the confidence of the public, not in bricks and mortar, but in architects. I was going to suggest, at the opening of the meeting, before you pressed Mr. Gammell to submit his resolution, that the function of this meeting should be to draw up a resolution for the purpose of discussing for what this conference should be called together.

Mr. GAMMELL: I take it you will afford me an opportunity to reply, Sir, to the amendment?

The PRESIDENT: I cannot accept it as an amendment; it is a different resolution. And I think the most convenient way of dealing with it would be, if Mr. Gammell's

\* The Council have no knowledge of any action on their part which would justify these remarks.—PRESIDENT R.I.B.A.

resolution is approved, that that should be one of the instructions, so that it would not come as an amendment. It is a different proposition altogether.

Mr. DELISSA JOSEPH [F.]: I think the last two speakers have, unconsciously, hit the nail on the head. The resolution proposed by the opener suggested that a group of societies should approach the Government with a view to asking them to restore public confidence in building investment. Consider what that means. Is it any business of a Government to make our task easy by endeavouring to restore public confidence in any form of investment? Is it any part of the work of an architect to endeavour to restore public confidence in any form of investment? I take it that the purpose of this meeting, called to consider professional problems of the moment, was probably to adopt some such course as Mr. Cockrill and Mr. Fraser indicated: that we should endeavour to put our house in order, to so consolidate the profession, so unite it, so close it eventually, that it might, as a compact strong body, be able not only to advance the immediate interests of the profession which we have now under consideration, but that it might also be ready, at any crisis, to stand up for the profession as a whole. Looking back over the last few years, what is the situation? No other profession has permitted itself to be absolutely suppressed, crushed out, as the architects' profession admits itself to have been. Why? Not because there was not work for architects to do for the advancement of the interests of the country during its period of crisis: simply because the profession was disunited, and, therefore, incapable of presenting an unbroken front to the Government and to the country. Passing out of a period during which our work has been thrown to the winds, we find ourselves attempting to re-establish our practices; surely this is the moment when we should stand shoulder to shoulder and, by endeavouring to consolidate the energies and intellect of the various groups of professional societies, try to close our profession by one of the various methods which have been discussed. We should so strengthen ourselves as to be able to face any new difficulties which may present themselves in the future, and to secure a better state of things for all. A few months ago some very interesting correspondence appeared in *The Builder*, initiated by Mr. John Murray, suggesting that the period before the end of the war should be spent in an endeavour to bring about this consolidation. I believe the matter was referred to at the Institute Council meetings, and it was generally understood that the Council itself had established a Committee which had been devoting considerable time and thought to dealing with the very aspects of the problem raised by Mr. John Murray. What is the result? We find the war over, we have no Report before us; we have no scheme before us, we have no guidance; nothing to help us in this crisis. The moral of this meeting is that we are unprepared. We were unprepared for war, we are unprepared for peace; and I hope you will permit the suggestions made by the last two speakers in their general sense to be incorporated in this reference, which should be as wide as possible. It seems impracticable to try to induce the Government to take a greater interest in the building industry unless we present a united front. Rather let us have a general resolution proposing the calling together of a conference of all the architectural institutions in this country, to consolidate and close the doors of the profession. And I think the first resolution might be recast in this sense.

The PRESIDENT: There seems to be some confusion of thought in the line the discussion has taken. Mr. Gam-

mell's original proposal was that there should be a conference of all those interested in the building trade with the view of restoring public confidence in building. But the last two speakers have addressed themselves to the question of the profession only, and the points urged by them are such as could not be considered by a conference of the kind proposed by Mr. Gammell. The unity of the profession and the state of the profession are not questions which could be considered by a conference at which builders and others interested in building could be present.

Mr. GAMMELL: The proposal made by me arose out of opinions expressed to me by men employing upwards of 3,000 workmen. It was their considered opinion that although for a short time, perhaps four or five years, the troubles of our profession in the building world might be tidied over by a Government scheme for building cottages, we should ultimately again be faced with this same question of loss of confidence on the part of people investing their money in building. That is why I made this suggestion. And the point which appealed to me is that Dr. Addison, when he received the deputation from the Institute, intimated that we were not the only pebble on the economic beach. It is because I want that criticism met that I made my proposal. I believe that if united action were taken by all bodies interested in building to put forward a resolution or memorial to the Government, urging that in their considered opinion the legislation of the last decade had had the effect of retarding and crippling the biggest industry in this country, some good and sufficient result would ensue. And, whilst I am in sympathy with the last two speakers, I still think that they raise another issue altogether. I think it is advisable for us to close our ranks, but at the moment I think we should take a broader view. It is no good looking at a scheme which means the compulsory, or semi-compulsory, employment of an architect. This is going further. I want to see, during the next twenty years, some brighter prospect than there seems to be at present. My resolution is broadly worded, and if this Council is authorised to consider this matter, I think some good practical result will ensue. I am in the hands of the President and the meeting with regard to my resolution, but I cannot accept Mr. Cockrill's amendment as a means of meeting the dangers and difficulties which I foresee for our profession when these Government schemes of housing are finished. I think my resolution should be allowed to stand; and if the further resolution is brought forward, I will cordially support it. I cannot accept that or any other amendment to my original resolution.

Mr. WHITE: As Mr. Gammell's seconder, I hope that Mr. Cockrill's and Mr. Fraser's proposal will be put as a separate resolution and not as an amendment.

Mr. FRASER: Does Mr. Gammell suggest that this conference or committee shall include builders, contractors, house-agents, civil engineers, and surveyors, or be a conference of architects to deal with the interests of the allied trades and professions? My point is we cannot have a conference of people outside the architects' profession unless we are ourselves united. If the two resolutions are regarded as raising separate issues, then the second is much the more important, and should be dealt with, the other being left until we can call this conference of architects. Then we shall get something on paper and show a united front to those people whom we shall invite to go into the matter with us.

The PRESIDENT: There have been many side-issues raised in this discussion. Mr. Gammell—and we are very much obliged to him for coming here and opening this dis-

cussion—(applause)—and stating the defects and the difficulties of the profession in the very clear and lucid way he has—proposed a resolution to the effect that the Council be asked to consider the advisability of calling a conference of those interested in the building trades, for the purpose of making representations to the Government asking them to take measures to restore public confidence in building investments. Another element has been introduced into the discussion as a matter for consideration at such a conference, and that is the state of the architectural profession itself. A conference such as Mr. Gammell suggested, made up of architects only, would be incompetent to deal with this large question of confidence in the building trade. And it is obvious, I think, that a conference at which others than architects were represented could not be expected to consider our own domestic affairs. The two things seem to be totally different propositions. With regard to the discussion on the state of the architectural profession, I think I can probably clear the ground by saying that the subject Mr. Joseph referred to has been before a very strong Institute Committee, which is considering what can be done in the direction of altering, or amending, or strengthening the policy of the Institute for the benefit of the profession. That Committee is still sitting, and it has held a large number of meetings, and taken evidence from prominent architects and others. Obviously, it is a very important matter which is under consideration, and it is impossible for the Committee to report until the various questions involved have been carefully gone into. The very fact of that Committee's existence will probably satisfy those gentlemen who have raised the questions of the unity of the profession and the closing of its ranks, which are under its purview. Whether such a conference as Mr. Gammell suggests would produce any tangible result is a matter on which I do not feel competent to express an opinion. But it is certain that there is that lack of confidence in building, due mainly to the operation of the Finance Act, and if anything could be done in the way of representation to the Government perhaps we ought to do it. At all events, if the meeting carries this resolution, I am quite sure the Council will very carefully consider the matter, and will call such a conference if it can see any useful result being given thereby. Professor Adshead's point, as to the employment of architects in connection with housing schemes as against the employment of the local official, will also be carefully considered, and the Council will endeavour to press the matter with the local authorities in the most effective manner possible. It is an important question, and may have considerable influence on the situation. I think a very large proportion of the Local Authorities are moving in the direction of appointing architects; and we know the Local Government Board is using its influence to induce Local Authorities to appoint independent architects to carry out housing schemes. The Institute has done, I think, as much as it is reasonably possible to do—(hear, hear)—in this direction, and I have little doubt that the profession will be very largely occupied in this work, which appears to be the only building likely to go forward within the next year or two. With regard to the cost of building, of course every one who can is waiting for a more favourable opportunity of proceeding with any schemes in view: that is only the natural course. I cannot think that the present prices of materials will continue, and from what I have heard from some of the large London builders something will almost certainly happen in the next year or two with regard to wages. It

is obvious that if the cost of building continues at its present rate, unemployment in the building trade will result, and if this becomes serious a reduction in wages is sure to follow. I incline to agree with the suggestion that the ultimate result after 18 months will be a normal rise of something like 50 per cent. over pre-war prices. That is an increased cost which could be dealt with. I will now put Mr. Gammell's resolution, "That the Council be asked to consider the advisability of calling a conference of those interested in the building trades, for the purpose of making representations to the Government with the view to restoring public confidence in building."

The PRESIDENT: Will you put it into writing, Mr. Cockrill?

Mr. WHITE: Can the second resolution be sent to the Committee which is sitting?

Mr. FRASER: I object to that, Sir.

The PRESIDENT: It is a separate resolution entirely, and calls for a separate kind of committee or conference from the one Mr. Gammell proposed; and it is obvious that the same conference could not consider the two matters. Therefore I shall be in order in putting Mr. Gammell's resolution, and if the proposer and seconder of the second resolution will put theirs into form, I will put that later.

Mr. Gammell's resolution was then put, and carried.

Mr. WHITE: Would it not strengthen the hands of the Committee now considering these professional problems if this resolution were sent up to it?

The PRESIDENT: I see considerable difficulty in forming another committee or conference to consider the same subjects as the present Committee is considering.

Mr. FRASER: Is that Committee entirely confined to members of the Council?

The PRESIDENT: No, members of the Allied Societies are on it, and evidence has been taken from other societies.

Mr. FRASER: I am out of order, but I want a conference which embraces the whole profession. The Committee of the Institute are working in shackles.

Mr. WHITE: Are the Society of Architects represented on that Committee?

The PRESIDENT: No; they could not be represented on an Institute Committee, but they have given evidence before it.

Professor ADSHEAD: And the outside public, too.

Mr. DELISSA JOSEPH: When can we have the report?

The PRESIDENT: It might be towards the end of this Session, but I am a little doubtful about that.

Mr. GAMMELL: I am out of order, but I would say that if we do not move in this matter, we shall have our "pool scooped," and I want to see this Institute, as a Chartered body, taking the lead, not being forced to follow. If the movement does not come from the Institute, there will be a movement from other organisations in the country, and we shall have to take second place, as we have had to do before. I hope that will not happen.

Mr. HERBERT SHEPHERD [A.]: I would like to say a word with regard to Mr. Joseph's remarks as to the unpreparedness of the profession. As a member of the Special Committee set up to deal with problems affecting the future of our profession, I would point out that the consideration of such a matter as the revision of professional policy is one which will take, and does take, a very large amount of time and much thought. The ramifications of the subject are innumerable, and the evidence brought forward very weighty, and one cannot expect a Committee of this kind to thrash out the many involved

questions that arise and get a report out quickly. It might take a year at the least. This Committee was appointed by the Council about a month after those letters appeared in the Press, and it is fully alive to the importance of furnishing a report as quickly as possible, and is making the best endeavours towards doing so. The question raised by Mr. Cockrill is being considered by this Committee.

The PRESIDENT: The second resolution is: "That this meeting is of the opinion that the time is ripe for the formation of a union for the purposes of restoring public confidence in the profession." It is proposed by Mr. Cockrill, seconded by Mr. Percival Fraser.

Mr. JOSEPH: I should not support the resolution if framed in that way.

Mr. FRASER: We have gone a little out of order in drawing this up. If Mr. Joseph will help us, out of his large experience, we shall accept his proposal without question.

The PRESIDENT: If you could formulate a resolution which could go to the Committee now sitting, it would meet the case. It is nothing more than the expression of an opinion.

Mr. JOSEPH: "That this meeting, called to consider the professional problems of the moment, urges upon the special Committee of the Institute to expedite its report, and to take into special consideration the practicability of bringing about a complete union of the profession."

This motion was put from the Chair and carried unanimously. The meeting then terminated.

#### Belgian Acknowledgments to British Architects.

The following graceful acknowledgment has been received of the hospitality and courtesies members were only too glad to afford Belgian architects driven to take refuge in this country in the early months of the War.

*Société des Architectes de la Flandre Orientale, Gand :*  
le 3 février 1919.

*The Hon. Secretary, R.I.B.A.—*

TRÈS HONORÉ MONSIEUR ET CHER CONFRÈRE.—Un de nos plus distingués confrères, Monsieur Valentin Vaerwyck, architecte en cette ville, est rentré depuis quelques jours à peine au pays après un séjour de quatre années et demie en Angleterre.

Au cours d'une assemblée générale tenue hier par la S.A.O.F., laquelle a l'honneur de compter comme membres les représentants les plus honorables de notre corporation dans cette province, Monsieur Vaerwyck a tenu à informer ses confrères de l'accueil si hospitalier qu'il a reçu en Angleterre. Il leur a dit spécialement que c'est grâce au R.I.B.A. que la plupart de nos confrères expatriés ont pu vivre dans des conditions parfaites de confort et de dignité. Il a signalé—et ceci nous a tous profondément émus—la procédure large et délicate employée pour mettre à la disposition de ces confrères l'aide dont ils avaient besoin. Ces procédés, Messieurs, doublent à nos yeux le prix de votre action.

Nous sommes particulièrement heureux, Monsieur le Secrétaire, d'être les interprètes de toute notre société pour vous prier de présenter à l'honorable président et à tous les honorables membres du R.I.B.A. nos remerciements les plus sincères. Nous sommes heureux comme professionnels de trouver parmi nos confrères britanniques des amitiés et des dévouements qui augmenteront encore la reconnaissance que nous avons déjà vouée comme patriotes à votre Grande Nation, notre puissante Alliée.

Agréez, s.v.p., Monsieur, nos salutations confraternelles. Signed by the President, Vice-Presidents and the Secretary of the Society.

The following reply was sent from the Institute:—  
*À Monsieur le Secrétaire de la Société des Architectes de la Flandre Orientale,—*

TRÈS HONORÉ ET CHER CONFRÈRE,—J'ai l'honneur de vous accuser réception de l'aimable lettre du 3 Février qu'ont bien voulu m'adresser Monsieur le Président et le Bureau de votre honorable Corporation.

Communication en a été faite à M. le Président et au Conseil de l'Institut Royal qui m'ont chargé de vous exprimer, en réponse, la vive satisfaction qu'ils ressentent d'avoir trouvé l'occasion de rendre service à votre éminent confrère M. Valentin Vaerwyck, ainsi qu'aux autres architectes belges pendant leur malheureuse expatriation. C'est, d'ailleurs, avec le plus grand plaisir qu'ils constatent, d'après votre honorée lettre, la reprise de ses importantes fonctions par la Société des Architectes de la Flandre Orientale.

L'Institut Royal désire souhaiter, de tout coeur, bien de succès et de bonheur pour l'avenir à sa Société soeur de la Belgique. Puisse la lutte acharnée, si noblement menée, que vient de couronner une glorieuse victoire, resserrer encore plus étroitement les liens qu'unissent les artistes des deux pays alliés!

Veuillez agréer, très honoré et cher confrère, l'assurance de mes sentiments confraternels les plus empressés.

Le Secrétaire honoraire R.I.B.A.,

E. GUY DAWBER.

#### The Proposed Zeebrugge Memorial.

It is proposed by the Anglo-Belgian Union to commemorate the heroic landing of the British forces on the Mole at Zeebrugge and the blocking of the Bruges Canal on 23rd April, 1918, by the erection of a memorial at the western side of the entrance to the Canal. The project is under the patronage of their Majesties King George and King Albert. The Society hopes to have at its disposal for this purpose a sum of £30,000, and announces a competition for the design of the monument which shall be open to architects and sculptors of British and Belgian nationality, competing either separately or in collaboration. It is desired that the monument should be visible at sea for a considerable distance, and it must thus be conceived on a large scale, the height from the ground to be not less than 75 feet. The form of the monument is left entirely to the competitors, but the material to be used must be granite or granite and bronze. The promoters suggest that the following incidents would be suitable subjects for commemoration:—(a) The storming of the mole; (b) the blocking of the canal entrance; (c) the blowing up of the viaduct; (d) the rescue of the blockship crews; (e) the co-operation of aircraft; (f) the smoke screens used by naval craft. Prizes will be awarded as follows:—1st Prize, commission and execution of memorial; 2nd, 3rd, and 4th prizes of £150, £75 and £50 each, respectively. Should the memorial not be executed, prizes of £200, £150, £75 and £50 respectively, will be given to the first four designs in order of merit. The jury of assessors will comprise Sir George Frampton, R.A. (chairman), M. Victor Rousseau, M. Paul Lambotte, C.B.E., M. Jules Brunfaut, M. Ryelandt, Mr. Ernest Newton, A.R.A., and Mr. M. H. Spielman, F.S.A.

The drawings and models must be delivered carriage paid at 9, Conduit Street, between 1st and 15th November



1919. All particulars of the competition can be obtained from the Hon. Secretary, Anglo-Belgian Union, 35, Albermarle Street, W.1.

#### Sta. Sophia.

Sir Thomas Jackson raises the question of the structural stability of the dome of Sta. Sophia in a letter to *The Times* of 17th February last. While in Constantinople in 1910 he was asked by the Turkish Ecclesiastical Commission to inspect the building and report on its condition, and although he was unable at that time to make more than a short examination, the serious nature of its structural defects was very evident. He says:—

"I found on examining the building a serious inclination outwards in the side walls north and south, together with the columns on each floor next to them. The columns at the north-east and south-east corners lean out diagonally, both in the ground storey and the gallery. The north-west part, where the 'sweating column' stands, is better supported by buildings outside, but by plumbing the walls in the centre of the building it appeared that the inclination was as much as 1 in 43. This yielding of the side walls has dislocated the arches and the vaulting; the arches through the great buttresses are much deformed, and no longer semi-circular; some of the vaults have sunk badly, and one in the north gallery seems in danger of falling.

"An alarming bulge in the north-east pendentive catches the eye as one enters the church; but it is only when seen from the gallery surrounding the dome at its springing that the full amount of the disturbance can be detected. From that level it will be seen that three of the great arches carrying the dome are much deformed, and that all the pendentives have suffered and lost their shape, so that the base of the dome no longer forms a true circle. The dome is constructed with 40 ribs of brick, converging on a circle at the crown; the crown seems to have sunk, and many of the ribs, especially on the east, south, north-east, and south-west sides, have sunk so badly as to have lost their arch construction, and to have become either straight or convex on their under side, where they should be concave. . . . The deformation of the dome is nothing new; it is noticed in Salzenberg's volume, published more than half a century ago. It is the result of a long series of catastrophes; M. Antoniades gives a list of, I think, 35 earthquakes by which the church has been shaken, and by which, in my opinion, the resistance of the great buttresses north and south has been weakened. It is to them, I think, that attention should in the first place be given and to the great piers which they support, and till they are secured it would be in vain to try to mend the dome. That the dome has not fallen is due to the singular stability of this form of construction. I remember noticing at Casamicciola, in the island of Ischia, that while most of the ordinary churches were thrown down by the great earthquake of 1883, and were still in ruins, those that had cupolas were still standing. At Sta. Sophia Paul the Silentiary tells us that, while half the dome fell 21 years after it was built, the other half remained 'insecurely hanging in the air, a wonder to behold.' Its construction by ribs makes this very intelligible, and also makes any reconstruction more easy. That it has survived to this day is a wonder, but the time has come when something more than the patching and propping by which it has hitherto been sustained is necessary, and when the construction should be seriously and scientifically repaired.

"There is no need to dwell on the loss to the world should any disaster befall Sta. Sophia. It is a building

unique both artistically and historically. It is the perfect flower of Byzantine architecture; it is a marvel of construction that has never been rivalled or repeated; and it has been the scene of events from Justinian downwards that have influenced the history of mankind."

#### A Student R.I.B.A. on Roman Architecture.

Mrs. Burnet Hughes [*Student R.I.B.A.*], wife of Lieut. T. Harold Hughes [*A.*], delivered a lecture recently on "Roman Architecture" to the Classical Society, at Marischal College, Aberdeen. Reviewing the history of Roman architecture from its beginnings at the foundation of Rome, she pointed out that the Romans received their early lessons in building from the Etruscans, who were especially at home with arch constructions, and that Roman architecture is a fusing of the style of building of the Greeks in that of the Etruscans. Though the Romans possessed little artistic feeling, they were an inventive people and thoroughly practical, and they had an unrivalled knowledge of construction and the use of material. The proportions of the Roman buildings might fall far short of the harmony of the Greek, but with their monumental effects they were perfect examples of the "grand manner." In Roman hands, too, the art of building was not confined to temples, but was extended in daring fashion and with the exercise of an intellectual imagination, to the solution of many difficult problems, the erection of palaces, amphitheatres, baths, basilicas, and triumphal arches. With modern building problems to face, the housing scheme of the Government and the erection of war memorials, we might with advantage employ the Roman principles of monumental planning.

It is of interest to mention that Mrs. Hughes, who is a niece of Sir John Burnet, while her husband was on service in France, helped to carry on his work as lecturer on Architecture at the School of Architecture, Aberdeen.

#### Original MS. of Gwilt's Encyclopædia.

Among recent library purchases is one of more than usual bibliographical interest in the shape of the holograph manuscript of the original edition of Joseph Gwilt's famous *Encyclopædia of Architecture*. The MS., bound up in three volumes, is written on quarto paper and runs to upwards of 900 sheets, a great number bearing the author's signature. The single-handed undertaking of such a comprehensive work, including as it does the history, theory, and practice of architecture, was a great feat, the collection of the material alone involving enormous labour, and the painstaking character of the man seems to be revealed in his script. Gwilt wrote a hand of microscopic fineness, and though legible its minuteness must have made the compositor's task no easy one. The date 1839 appears on the fore-edge of two of the volumes, but the first edition of the work was not published until 1842, at least three subsequent and enlarged editions appearing during the author's lifetime, running at length to a ninth edition, issued in 1888 under the editorship of Wyatt Papworth, a re-impression of this last being printed in 1899. The MS. was formerly in the library of the late C. J. Shoppee.

#### Channel Islands Church Plate.

*The Church Plate of the Deanery of Jersey.* 80. Jersey 1917; and *The Church Plate of the Deanery of Guernsey.* 80. [1918.] By S. Carey Curtis, A.R.I.B.A.

With the publication of the latter volume the author has now given us a complete inventory of the Channel Islands church plate, for the two lesser islands of Alderney and Sark form part of the Guernsey Deanery.

Following a very brief introductory sketch of the historical periods into which the material may be divided an annotated and fully illustrated catalogue of the plate is arranged under the different parishes. Excepting three pieces of the pre-Reformation period, most of the earlier church plate in the islands belongs to the seventeenth and eighteenth centuries, and is mainly of English origin. Notable among the earlier pieces is a rarity in the shape of an altar cruet, known as the Guille cruet, now forming part of the service in the church of St. Peter Port, Guernsey. This has been described by Mr. W. H. St. John Hope in the *Proceedings* of the Society of Antiquaries, who ascribes it to the early part of the sixteenth century.

Great pains have been taken in the compilation of the lists, which include exact records of all inscriptions, the names of donors, supplemented by brief biographical and heraldic notes, with reproductions of the hall and makers' marks. The material dealing with Jersey is reprinted from the Bulletin of the Société Jersiaise for 1917.

#### Dilapidations Practice.

The well-known Institute handbook on "Dilapidations," first published in 1903, has just been issued in a new and revised form under the editorship of Mr. Sydney Perks, F.S.A. [F.]. Since its first appearance various cases have been decided and enactments passed which affect the practice of dilapidations, and these are dealt with in the new edition, bringing it up to date. The wording of the repairing covenant has also been improved and simplified. The work is issued at the price of 2s. 6d. net.

#### OBITUARY.

**William James Davies** [A.].—The death has occurred from pneumonia of Mr. W. J. Davies, an Associate of the Institute since 1904. He was articled to Mr. T. E. Lidiard James, of Chancery Lane, and for a period acted as managing assistant to the late Mr. R. A. Briggs. Mr. Davies was a member of the Institute Literature Committee, in whose work he was much interested, as well as in the general development of the Library, being himself a keen book collector. He was the joint author of *Tuition in Engineering, Sanitation, etc.*, with Mr. Moss-Flower, with whom he was formerly in partnership in Bristol. For some years he had been serving in the Department of Ancient Monuments and Historic Buildings at H.M. Office of Works. Sir Frank Baines, K.B.E., in a letter to the Institute, referring to the special services rendered by Mr. Davies during the war, and to the high esteem in which he was held by the Department, says:

"Upon the outbreak of war he assisted very materially in connection with the work for the defences of London, and was afterwards engaged upon the organisation rapidly got together for buying timber for the Armies in the Field, etc., where he gave the most devoted service. When that service was transferred to the Board of Trade he was employed upon work in connection with some of the greatest war factories in this country, where his devotion to duty and integrity of character gave the most excellent results.

"I fear that the severe strain through which he worked

for many years must have reduced his power of resistance to disease, and all who knew him at this Office realise that they have lost a colleague of great personal charm and of the highest character. He brought to his work an enthusiasm which was an inspiration to some of his junior colleagues.

"Before the war we used him very fully in connection with our work upon Ancient Monuments and Historic Buildings. His value on such work was extraordinarily high, and his quality is, I think, shown in the essay which he submitted for the Institute Medal in 1913, entitled 'The Preservation of Ancient Monuments,' and which was judged to be the best by the Institute."

**Albert Lewis Guy** [F.], who died on 5th February at the age of 69, was elected an Associate of the Institute in 1882 and a Fellow in 1904. He served his articles with the firm of John Brown, of Craven Street, Strand, and started practice forty years ago in Lewisham, having offices also in London in Gray's Inn. Among his works are the Lewisham Girls' Grammar School, St. Mary's Parish Hall and Institute, Sydenham Public Library, Brockley Public Library, Northfleet Board School, Salisbury Hotel and block of shops, Lewisham. He also carried out the Electric Parade and some thirty shops at Clacton-on-Sea, the Electric Parade and thirty-four shops and the London and South-Western Bank at Westcliff-on-Sea, and Broadway Buildings, Leigh-on-Sea. He was architect of various houses, his most recent work being extensive alterations to Westfield Place, Battle, the seat of Major Mullens.

**Mr. Fred Bath** [F.], of Salisbury, who has just died after undergoing an operation, was in his 72nd year, and in practice at Salisbury for 46 years. Elected an Associate in 1881, and Fellow in 1887, he was the architect of the Albert Bridge Flour Mills, Battersea, S.W., and of the County Hall, Fisherton schools, Milford Manor, New Sarum House, etc., of Salisbury, the Memorial Church at Sherfield English, and many other works in Wiltshire, Dorsetshire, Somersetshire, Middlesex, and Surrey. Mr. Bath carried on his practice until his death, but had taken a much less active part in his profession during the last few years of his life, owing to ill health.

**John Woolfall** [F.], who died on 25th February at his home, Briar Cottage, Formby, Lancs, in his 71st year, was born at Huyton, near Liverpool, and belonged to a very old Lancashire family, which for many generations lived at Woolfall Hall, Huyton. He received his early education there, and served his articles with the late Mr. E. Davis, of Temple Court, Liverpool. Later on he was with Mr. C. E. Grayson, of 31 James Street, Liverpool, for many years as Head Assistant. In 1890 Mr. Woolfall entered into partnership with the writer at 60 Castle Street, Liverpool, and this association continued up to the time of his death. Mr. Woolfall was elected a Fellow of the Institute in 1903, and was President of the Liverpool Architectural Society during the period 1902-1904. Of late years Mr. Woolfall had devoted his energies to the planning and carrying out of a large number of premises for one of the leading banking companies, and for this he was singularly gifted. He possessed great planning ability, especially in commercial buildings, schools and the like. He also had a singularly clear insight into all questions relating to light and air and other legal points connected with the profession. His disposition was of a most kindly and cheery character, and many clients, as well as builders, would testify to the justness and uprightness of his dealings. Mr. Woolfall was unmarried and lived with his only sister, whose devotion to

him could not have been surpassed, and to her much sympathy has been extended.—T. E. ECCLES [F.].

**Matthew G. Martinson** [*Licentiate*], who died suddenly from pneumonia, on 13th November, 1918, was elected to the Licentiate ship in 1910. He was the youngest son of the late Mr. John Martinson of Bellingham, Northumberland, and received his education at the County School, Barnard Castle. After serving his articles with Messrs. Plummer & Burrell of Newcastle-on-Tyne, he joined the staff of Messrs. Barnes & Coates, of Sunderland. He subsequently carried out a good deal of work for Sir Charles Morrison Bell at High Green Manor. Becoming chief architectural assistant under the surveyor to the Northumberland County Council, he designed the new County offices and various police stations whilst in that office. Early in 1913 he was appointed architect to the Northumberland Education Committee and in this capacity completed the Wallsend and Whitley Bay secondary schools and designed and carried out Monk Seaton, Newbiggen, Hoxham and North Seaton schools. A quick and good draughtsman, all his work showed a sound grasp of construction. He took a great interest in the work of the Northern Architectural Association on which body he had served as a member of council. Outside his profession Mr. Martinson interested himself in Freemasonry and belonged to the Percy Lodge. He leaves a widow and four children, to whom our sympathy goes out. J. G. B.

## COMPETITIONS.

### Pineapple Farm, Birmingham, Housing Competition.

The following notice has been issued by the Birmingham Architectural Association, through whose instrumentality, by means of personal interviews with the Lord Mayor of Birmingham and the Chairman of the Housing Committee, a better understanding has been arrived at with regard to the intentions of the Housing Committee as to the appointment of an Assessor and the employment of one or more of the successful competitors in the erection of their designs: "The misunderstanding between the Housing Committee of the City Council and the representative Associations of Architects with regard to the terms of this competition having been satisfactorily removed, the Birmingham Architectural Association wishes to inform architects that the Housing Committee has been good enough to extend the date for sending in plans until noon on Thursday, 23rd April, in order that architects desirous of competing may be enabled to do so."

### Borough of Ipswich Competition for Model Dwellings. City and County of Newcastle-upon-Tyne Lay-Out Scheme for Housing.

The Competitions Committee of the Royal Institute of British Architects request Members and Licentiates of the Institute not to take part in the above competitions until a further announcement is made that the conditions have been brought into conformity with the Institute regulations for the conduct of architectural competitions.

## MINUTES.

At the Eighth General Meeting (Ordinary) of the Session 1918-19, held Monday, 17th February 1919, at 5 p.m.—Present: Mr. George Hubbard, F.S.A., *Member of Council*, in the Chair; 15 Fellows (including 3 members of the Council), 7 Associates, 2 Licentiates, and a few visitors—the Minutes of the Meeting held 3rd February were taken as read and signed as correct.

The decease was announced of the following members:—Henry Winter Johnson, of Market Harborough, elected Fellow 1904; Charles Dudley Arnott, of Shanghai, elected Associate 1911; William Edwin Johnson, elected Associate 1893.

Mr. H. T. Buckland [F.] having read and illustrated by lantern slides a Paper on "FACTORY BUILDINGS, CHIEFLY IN RELATION TO THE WELFARE OF THE WORKER," a discussion ensued, and on the motion of Mr. Max Clarke [F.], seconded by Mr. D. Barelay Niven [F.], a vote of thanks was passed to the author by acclamation and was briefly acknowledged.

The proceedings terminated at 7 p.m.

At a Special General Meeting (Ordinary) held Monday, 3rd March 1919, at 5 p.m.—Present: Mr. Henry T. Hare, *President*, in the Chair; 36 Fellows (including 14 members of the Council), 24 Associates (including 4 members of the Council), and 9 Licentiates, the purpose of the Meeting having been announced:

The President moved, Mr. George Hubbard, F.S.A. [F.], seconded, and it was

RESOLVED, by acclamation, That subject to His Majesty's gracious sanction the Royal Gold Medal for the promotion of architecture be presented this year to Mr. Leonard Stokes, in recognition of the merit of his executed work.

The Special General Meeting then terminated.

At the Ninth General Meeting (Business) of the Session 1918-19, held Monday, 3rd March, following the Special Meeting above recorded and similarly constituted, the Minutes of the Meeting held 17th February having been taken as read were signed as correct.

The decease was announced of the following members:—Horace Cheston, elected Associate 1873, Fellow 1885; Fred Bath, elected Associate 1881, Fellow 1887; Walter Ernest Hewitt, elected Associate 1892; John Woolfall, elected Fellow 1903, and Captain Philip Dennis Bennett, elected Associate 1914.

The Hon. Secretary having referred to the valuable service rendered the Institute by the late Mr. Horace Cheston as member and Vice-Chairman of the Science Standing Committee, it was Resolved that an expression of the Institute's deep regret for his loss be recorded on the Minutes, and that a message of sympathy and condolence be conveyed to his son, Mr. John Alford Cheston [A.].

The following candidates were elected by show of hands:—

### AS FELLOWS (9).

MORLEY: ERIC [A., 1909], Bradford.  
SWARBICK: JOHN [A., 1902], Manchester.  
TUGWELL: SYDNEY [A., 1911], Bournemouth.  
TYRWHITT: THOMAS [A., 1900].

And the following Licentiates who have passed the qualifying examination:

ALLEN: GEORGE PEMBERTON, Bedford.  
COLERIDGE: JOHN DUKE.  
FORREST: GEORGE TOPHAM, Chelmsford.  
HODGSON: ARTHUR NICHOLAS WHITFIELD, Windermere.  
WILLIAMSON: WALTER, Bradford.

## AS HON. CORRESPONDING MEMBER.

KRUG: GEORGE HENRY, Brazil, Professor of Architecture under the State Government.

## AS ASSOCIATES (48).

ALISON: WALTER [S., 1912], Dysart, Fife.  
BEECH: FREDERICK WILLIAM [S., 1908], Exeter.  
BENNETT: GWYN [S., 1910].  
BROADHEAD: FRANK ARTHUR [S., 1911], Nottingham.  
BRUCE: JOHN CLAYTON COLLINGWOOD [S., 1913],  
Whitby.

CAMERON: ROBERT HUNTER [1913], Glasgow.  
CART DE LAFONTAINE: PHILIP [S., 1911].  
CASH: HERBERT WILLIAM [S., 1910].  
CLARE: ALFRED DOUGLAS [S., 1913], Manchester.  
COLERIDGE: PAUL HUMPHREY [S., 1910].  
CURRIE: JOHN KIRKWOOD [S., 1918].  
DERRY: DOUGLAS CHARLES LAWFORD [S., 1917].  
EDWARDS: ARTHUR TRYSTAN [S., 1915], Merthyr  
Tydfil.

EDWARDS: JOHN RALPH [S., 1912], Bristol.  
GILL: MAURICE BERNARD [S., 1913].  
GLENCROSS: LESLIE HAROLD [*Special War Exam.*].  
GRAY: GEORGE HALL [S., 1912], North Shields.  
HARKNESS: WILLIAM [S., 1912], Dorset.  
HARWOOD: ARNOLD WILLIAM [S., 1911].  
HASELDINE: CYRIL FRANK WM. [S., 1913], Beeston.  
HEAD: GEORGE LESLIE [S., 1912].  
HILL: HENRY HOUGHTON [S., 1905], Cork.  
HUBBARD: HARRY [S., 1914], Glasgow.  
LAWSON: EDWIN MADDISON [*Special War Exam.*],  
Chester-le-Street.

LAWSON: JOHN SCOTT [S., 1913], Dunfermline.  
LEADAM: EVELYN GRAHAME SEATON [S., 1913].  
LEAHY: WILLIAM JAMES [S., 1909].  
LLOYD: ALBERT PEREGRINE [S., 1914], Swansea.  
MAY: THOMAS WILLIAM VIVIAN [S., 1914].  
MIDDLETON: VIBERT [S., 1908], Newcastle.  
PITE: ION BERESFORD [S., 1914].  
ROBINSON: NORNGROVE STUART [S., 1912], Spilsby.  
ROSE: GEORGE ALERED [S., 1913].  
ROWNTREE: DOUGLAS WOODVILLE [S., 1908].  
RUTHEN: ERNEST SIDNEY [*Special War Examination*].  
SACRE: LESTER HOWARD [S., 1914], Chelmsford.  
SAUNDERS: BERNARD ROBERTSON [S., 1913], Birm-  
ingham.

SKELDING: PERCY [S., 1912], Bristol.  
SKINNER: MARTIN [S., 1902], Walton-on-Thames.  
SLATER: MARTIN JOHNS [S., 1912], Hadleigh, Suffolk.  
SMITH: CHARLES WILLIAM [S., 1915], Cambridge.  
SPENCE: ANDREW TEBBUTT [S., 1912].  
STEPHENS: HERBERT STANLEY [S., 1913].  
TENNARD: HY. BARTHOLOMEW [S., 1914].  
WHITE: THEODORE FRANCIS HANSFORD [S., 1913].  
WIGGINS: JOHN STANLEY [S., 1913], Brighton.  
WILLIS: WILLIAM ELIA [S., 1908], Pentre, South  
Wales.

WOODROFFE: NORMAN FREDERIC [S., 1911].

The meeting then proceeded to the consideration of the Revised Scale of Professional Charges, the President stating that the document was in some respects a revision of the Scale which was passed in 1915, and ruling that the various clauses should be discussed and put to the vote *seriatim*.

Mr. Gillbee Scott [F.], Hon. Secretary of the Scale of Charges Committee, explained the alterations which had been made as each clause was put to the meeting.

On the motion of Mr. Bernard Dicksee, it was agreed that the title should read "Scale of Professional Charges adopted in 1872, and revised in 1898 and 1919."

Clause (a) of the Conditions of Engagement was adopted, 2 voting against it.

On the motion of Mr. A. Saxon Snell [F.], it was agreed that the second sentence of Clause (b) should read "He shall be nominated or approved by the architect, and ap-

pointed and paid by the client." Clause (b) as amended was then put and carried.

A proposition by Mr. H. Hardwicke Langston [A.] to substitute the word "employer" for "client" was put to the vote and negatived.

Clauses (c) and (d) were carried.

A proposition to substitute the word "design" for "Works" in Clause (e) it was agreed to submit to the Institute solicitors, whose decision should be final. Clause (e) was then carried.

Clauses (f), (g), (h), and (i) were carried as drafted.

Clause 1, sub-clauses (a) and (b) of the Scale of Charges, was put and carried as drafted.

Clauses 2 and 3 were deleted.

Further consideration was adjourned to Monday, the 24th March, and the Meeting separated.

An Extra-Ordinary General Meeting was held Monday, 10th March, 1919, at 5 p.m.—Present: Mr. Henry T. Hare, *President*, in the Chair; 15 Fellows (including 5 members of the Council), 9 Associates (including 3 members of the Council), and 2 Licentiates.

The President announced the object of the meeting—viz., to consider some of the professional problems of the moment.

A general discussion ensued, in which the following members took part:—Mr. K. Gammell [A.], Mr. W. Henry White [F.], Mr. Max Clarke [F.], Professor S. D. Adshead [F.], Mr. Arthur Keen [F.], Captain C. W. Long [A.], Mr. D. B. Niven [F.], Lieut. G. Scott Cockrill [A.], Mr. Percival M. Fraser [F.], Mr. Delissa Joseph [F.], Mr. Herbert Shepherd [A.], and the President.

Upon the motion of Mr. K. Gammell [A.], seconded by Mr. W. Henry White [F.], it was

RESOLVED, That the Council be asked to consider the advisability of calling a conference of those interested in the building trades, for the purpose of making representations to the Government with the view to restoring public confidence in building as a means of investment.

On the motion of Lieut. G. Scott Cockrill [A.], seconded by Mr. Percival M. Fraser [F.], it was

RESOLVED, That this Meeting, called to consider the professional problems of the moment, urges upon the Future of Architecture Committee to expedite its Report, and to take into special consideration the practicability of bringing about a complete union of the profession.

## NOTICES.

## Revised Scale of Charges.

The GENERAL MEETING (for Members only), adjourned from the 24th March, will be held on MONDAY, 7TH APRIL, at 5 p.m., to resume consideration of the REVISED SCHEDULE OF PROFESSIONAL CHARGES, commencing with Clause 13.

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